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ABSTRACT

The personal characteristics of teachers and the situational characteristics of work settings were identified and studied in relation to adoption and implementation of innovations among teachers. One hundred teachers were administered a questionnaire to identify teacher and situational characteristics. A subsequent interview determined the teachers' adoption and implementation behavior. Through an application of ANOVA and correlational and regression analysis, these characteristics related to adoption and implementation were identified. Variables such as professional involvement, recent inservice activity, the existence of a staff committee in the school, and class size were found to account for a significant proportion of variance of implementation scores. Implications for renewal in the schools were clearly evident from the results of the study. (Author/IRT)

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SITUATIONS AND CHARACTERISTICS RELATED TO THE ADOPTION AND IMPLEMENTATION OF INNOVATIVE PRACTICES

Donald Aylen
Darrell Anderson
Marvin Wideen

A study funded by ERIBC and SFU

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PREFACE

In the fall of 1975, the Educational Research Institute of British Columbia awarded a grant-in-aid of research to the authors of this report to investigate the factors and situations influencing the adoption and implementation of innovations by teachers. The study began at that time with the development of an instrument and interview schedule. The data were collected during the spring of 1976 and the analysis carried out during the summer and fall of 1976. This report, which provides the background to the study, the details of the data collection and analysis, and a discussion of the results, represents the final commitment of the research team to ERIBC in terms of fulfilling the conditions of the grant.

Research has little payoff for the schools in particular and for the larger educational community in general if results are not disseminated and used to improve practice. Thus, this report is seen as only one vehicle to disseminate the results from the research. Plans are underway to report the results through publication channels both to the practitioners of the province and also to the larger educational community. Also, attempts will be made to meet with the participating schools in order to discuss the implications of the data.

The authors wish to express appreciation for the financial support received both from the Simon Fraser President's Research Fund, which provided monies for developing the initial proposal,

and the subsequent funding by ERIBC to conduct the remainder of the research. Special thanks must also be extended to the 10 schools and school districts which cooperated in the study.

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SITUATIONS AND CHARACTERISTICS RELATED TO THE ADOPTION AND IMPLEMENTATION OF INNOVATIVE PRACTICES

ABSTRACT

The purpose of the study was to determine which factors and situations influence elementary school teachers to adopt new classroom practices, and what characteristics separate adopters from non-adopters. Thus, both common personal characteristics of teachers as well as selected situational and structural features of their social system were analyzed in order to assess the relative impact of these sets of variables on adoption behavior.

The sample consisted of one hundred elementary school teachers randomly sampled from ten schools, which had been randomly selected from ten school districts in the lower mainland of British Columbia. An analytical survey method was used with both a questionnaire and a structured interview employed to gather data from each teacher.

Initially, sixty-six independent variables were examined relative to the adoption of seventeen classroom practices. The dependent variable was comprised of a total adoption score for each teacher calculated on the stage of adoption process reached for each of the classroom practices.

Standard correlational analysis and ANOVA programs were used to assess significant relationships among means of teacher adoption scores with the sixty-six independent variables. This

procedure was basically employed as a "filtering" device. Thus, tests of significance were made at the 10 percent level, and variables showing correlations or F values above this level of significance with the adoption score were precluded from further analysis as they would seem to lack predictive power. Multiple step-wise regression analysis was subsequently used to determine the proportion of variation in adoption scores explained by the twenty-seven significant independent variables remaining after the initial "filtering." Tests of significance at this second stage were reported for both the .05 and .01 level. In addition, the data were examined by the use of factor analysis on the independent variables, and the four sets of factor scores developed were also entered into a regression analysis.

When the eight significant variables from the three analyses involving personal, situation, and structural variables were entered as a set, four were significant at the .05 level and accounted for 32 percent of the variance. Two personal characteristics, one relating to membership and participation in professional associations, and the other pertaining to the teacher's recency of participation in personal in-service accounted for 18 percent of the variance. Two structural variables, one pertaining to class size and the others to staff committees accounted for the remaining 14 percent. With regard to the factor analysis, the component of "individualism," pertaining to in-service activities which teachers might be expected to initiate on their own, accounted for 5 percent of the variance.

In summary, the teachers most likely to implement new classroom practices were those participating actively in their professional associations and having recently been involved in personal in-service. They are likely to teach in a classroom of high enrolment, and in a school having a staff committee.

Further, this study has identified a considerable measure of teacher "individualism" similar to that described by Lortie in his recent work. Such isolated individualism on the part of classroom teachers is likely to present a considerable obstacle to those involved in proposing change and renewal in the schools.

Chapter 1

BACKGROUND AND OBJECTIVES OF THE STUDY

Introduction

> We assume that all cultures are in a constant state of change. Yet people differ in terms of their opportunity to become acquainted with new practices and also in their receptivity toward change. Moreover, whole societies differ in the efficiency and speed with which they change.
> (Mendez, 1968)

From the literature and debate on schooling, one becomes immediately aware of the preoccupation with the need, if not the demand, for change on the one hand, and the recognition, on the other, that the structure of teaching and the organization of the school lean heavily toward continuity and not change. Many of the recent proposals for school reform and the plethora of alternatives generated by a decade of curriculum development have been termed "revolutionary" in scope. That such proposals have had little effect on the schools and that most of the innovations have not been implemented indicate that the revolution has been one more of rhetoric and expectation than practice.

Thus we are left with a problem of an ever widening gap between theory and practice in education which is exacerbated by a number of factors. Firstly, there is confusion about the purposes and goals of schooling (Miles, 1964). What represents an innovation for one may be a regressive step for another. Secondly, the development of many innovations has proceeded without primary concern for the problems of the school. In this connection, Goodlad (1975) has described the results of the curriculum

reform movement as a set of solutions looking for a problem. Thirdly, there is a weak knowledge base both in terms of the worth of innovations and the change process itself.

It was the lack of a knowledge base about the change process that first interested members of the research team. With the conviction that some of the responsibility for closing the gap between theory and practice rests with the teacher, it was felt that a contribution could be made by considering the change process through viewing the teacher as the key element. From the first perusal of the literature, it was evident that while the teacher's role in change was recognized as a very significant one (Nussell and Johnson, 1969; Michelson and Armstrong, 1973; Sieber, 1972), little was known about what influences a teacher to change or adopt a new practice, or what characteristics separate an adopter from a non-adopter.

Accordingly a member of the research team undertook a review of the literature on the adoption of new practices. The review was not confined to the field of education as it soon became evident that there was a dearth of literature on the adoption process in educational research. In particular, the fields of anthropology and rural sociology were drawn on for some of the basic concepts pertaining to adoption. During that review, several points became evident having implications for further research. Firstly, most of the research pertaining to the adoption process in education had been oriented toward the adminstration and organizational aspects of the school. Little was known about the individual teacher, who in the final analysis, likely has considerable influence on the adoption or rejection of an innovation

Thus it was felt that research was needed that focused on the teacher as the unit of adoption.

Secondly, a great deal of work had been done in fields such as rural sociology on the adoption process, particularly in identifying the characteristics of adopters. The replication of this work as it pertained to teachers offered a fruitful starting point by determining if the characteristics which were important for adopters in other fields were also important in education.

Thirdly, research in rural sociology has so far provided a fairly limited examination of the relationship of the individual adopter to the structural and situational characteristics of his social system. This was equally true of models for change developed in education. The work of Dalin (1977), Sarason (1971), and Lortie (1975), however, have clearly dispelled the notion that the adoption of innovation is a process that can be examined out of the context of an entire range of factors comprising the environment in which an adopter lives and works. From this it was felt that the relationship of the teacher-adopter to pertinent situational and structural characteristics of his social system should be examined in further research.

Fourthly, much of the professional literature in education regarding the change process in general and the adoption of innovations in particular had been inspired on bases other than observation and collection of systematic data. Much of the work appeared to have been written not to describe situations but to motivate or exhort people, and not to analyze situations but to prescribe solutions. The tendency in in many papers is to decry the gap between theory and practice, or make calls for "radical redirection" rather than to provide an indepth understanding of the change process itself. While such literature obviously had its purposes, the common shortcoming appeared to be a lack of systematic data from which inferances could be drawn. Thus it

seemed that further understanding and progress were likely to follow direct observation and collection of data.

Objectives of the Study

The findings of the literature summarized above, and as well as the conviction that the classroom teacher was a key element in the change process, at least as it related to classroom practices, prompted the design of a study to determine which factors and events influence teachers to adopt new practices and what characteristics, if any, separate adopters from non-adopters. The objectives of the study were the following:

1. To identify the characteristics of teachers who adopt recommended practices in their classrooms.
2. To identify characteristics of the social system that are related to the adoption of new practices.
3. To identify events or influences such as in-service instructional, personal contacts, and work toward certification that are related to the adoption of new practices.
4. To investigate the relationship between adoption of new practices and,
   a) the source(s) of information available to teachers,
   b) the communication networks of teachers,
   c) the degree to which the teacher views her/his occupation as a profession,
   d) the participation in professional activities such as taking an active part in professional organizations and reading professional journals.

The inclusion of the first objective was largely an attempt to replicate with teachers, research done in sociology and anthropology using the characteristics of adopters in those fields as a basis for investigation. It will be seen later that many of these were personal characteristics. While such are of interest and while it is indeed important to know if they are related to implementation, their identification does not appear to offer a great deal of assistance to schools wishing to improve the extent to which their teachers adopt new practices, because many such factors are not readily controllable. However, the existence of relationships between these characteristics and adoption does provide a basis for understanding some of the elements pertaining to the change process in education from which ultimately might emerge more sophisticated approaches to both planning and managing change strategies.

A more manageable, and perhaps, more relevant, set of variables arise out of the characteristics of the social system and the identifiable events and work situation influences that affect the adoption behavior of teachers. Thus, organizational system factors were included in the design of the study as indicated by the second and third objectives. The inclusion of these factors was based largely on work done by Anderson (1974), in which it was found that among administrators of public school adult education, such system variables accounted for the greatest proportion of the variance in adoption scores. It was thought that this same phenomenon might also apply to teachers.

The sources of information available to teachers, the communication networks, and the professional perceptions and activities of individuals were also of interest to us partly on the basis of our own convictions about teacher professionalism and also on the basis of the literature. As mentioned earlier, part of the responsibility for closing the gap between theory and practice is vested with the individual teacher who can be perceived as a professional. Accordingly, one would expect those who engage in professional activities and who perceive themselves as professionals are likely to be more inclined to adopt recommended practices than those who do not. In addition, communication networks are identified in the literature review as very important factors in influencing adoption. Thus the fourth objective was included.

Overview and Outline

Since the intent of the study was to identify personal and systems factors related to adoption, it was necessary to construct indicators of both. The selected factors were included in an instrument comprised of two sections, one administered as a questionnaire (Appendix B-1) and the other as an interview schedule (Appendix B-2). The items in each reflected a range of personal and situational characteristics included in the categories defined by the objectives just discussed. As an indicator of adoption, teachers were presented with a list of 17 teaching practices, and interviewed as to the extent to which these had been implemented. The study itself was conducted in two parts. The first, in the fall of 1975, involved the construction and

validation of an instrument. During the spring of 1976, the second phase was conducted which involved the interviewing of a sample of teachers from elementary schools selected at random from several school districts in the lower mainland of British Columbia.

The second chapter of the report deals with literature that is germane to this study and draws on material reviewed prior to the study as well as on more current references to place findings and recommendations of this study in context. The procedures for the development and validation of the instruments, as well as details pertaining to the survey, are provided in chapter three. The results of the study including data relative to the objectives as well as descriptive data which was both of interest and useful in interpretation are contained in chapter four. The final chapter presents the conclusions of the study, dealing with both those of a theoretical nature and those of practical significance.

Chapter 2

PERTINENT LITERATURE

Introduction

This study has a very clear focus, namely, to identify the characteristics of teachers who adopt recommended practices. However, the apparent simplicity of this purpose should not mask the complexity of the change process of which it is only a part. Thus, we begin with the change process, not for purposes of exhausting the literature in that area, but rather to place the study in perspective. The second general area after this introduction, "Some Specifics of Change in Education", deals with the definitions used in the study and the way in which communication channels and time affect the implementation of innovations. The stages of adoption and the use of adoption scales are dealt with in a subsequent section, "The Process of Adoption". The literature on the characteristics of adopters is then presented and it includes generalizations about socio-economic characteristics, personality attributes, communication behavior and miscellaneous concerns. A summary of the main points elaborated in the categories above concludes the chapter.

Change in Education

We are beyond debating the inevitability of change in society. As Bennis (1969) indicates, the contemporary debate has swung from change versus no change, to the methods employed in controlling and directing change. Whether one views the school

as a vehicle for social reform or as an institution which reflects society, one cannot escape the inevitability of change in our schools. The fact that the schools are among our most conservative institutions in terms of change is one of the reasons why there is considerable discontent and criticism directed at schooling today. But change in education is a complex process and most attempts to alter what takes place in the classroom have met with failure. Despite the large amounts of money that have been spent on research and development in the last two decades, despite the newer technologies that could improve the teaching of our children, despite what we know about alternative forms of schooling such as open education and individual differences that we did not know a decade ago, the "persistence of recitation" describes our classrooms as aptly today, as it did in 1964, when Hoetker (1964) coined the phrase.

As we indicated earlier, the purpose of this section is not to review the literature on the change process, but rather to place the study in a broader perspective. This we will do by briefly offering two perspectives on change. In addition, we will cite those writers who have drawn attention to the complexities involved both in studying change, and in trying to alter structures and practices in our schools.

One perspective views change in education from a hierarchical, linear paradigm involving invention or research, development and diffusion. Much of the early work done by geographers such as Hagerstrand (1967), and many of the early studies conducted

on rural populations (Rogers, 1962) focused on the study of diffusion of innovations. Prior to the diffusion process, of course, was the invention and development of the innovation quite separate from the adopter who came on the scene at a later stage in the study of the process.

According to Rogers and Shoemaker (1971), whose view of change falls within this perspective, adoption is one of the phenomena occurring within the larger context of communication and social change. They define social change as the process which causes alteration in the structure and function of a social system and divide it into three stages, 1) the invention, the creation process of new ideas or practices, 2) the diffusion, the process of communicating these ideas to individuals in a social system, and 3) consequences, the changes resultant from the adoption or rejection of the new practice or idea. They further define change as either immanent change or contact change. The immanent change occurs when a new idea or practice is developed by members of a social system with little or no outside influences; and contact change occurs when outside sources bring a new idea or practice to a given social system. Contact change can be either selective or directed. The former occurs when adoption or rejection of an external new idea is based on the needs of the members in a given social system; the latter is caused by external persons or agents who fully intend to introduce new ideas or practices to achieve pre-determined goals.

The research, development and diffusion model (R, D & D)

first developed by Brickell (1961) in the United States presented a paradigm through which a great deal of money was spent in that country to effect change in the schools. Havelock (1973) has described the essential features of the model as involving a high initial cost in the development of an innovation, intensive planning for diffusion and a rational but passive consumer who would adopt the innovation if it were offered to him in the right form at the right time.

This perspective of change is not without its critics. Goodlad argues that the R, D & D model is not a strategy for change but rather a system for turning out "answers in search of problems". He continues that "What comes out to be diffused being more or less adrift, requiring some other force to pull it into close juxtaposition with persons who might have some use for it." (Goodlad, 1975). House (1974) argues that the whole notion of R, D & D is built on false assumptions. In particular, he criticizes the "doctrine of transferability" implied in this notion of change.

A second perspective on change views it as a more cyclical, ecological phenomenon which is much more complex than the first perspective discussed. The work of Sarason (1972) and Dalin (1977) is typical of those who view change in this way. Sarason describes change as the creation of new settings and documents his notation "that the more things change the more they stay the same". He draws our attention to the fact that innovations typically fail in most new settings, and that the historic aspects of every setting in which a change is to take place is a major factor in

determining the success of that innovation. Dalin has proposed a change model in which he identifies four factors basic to educational change: the environment, the educational setting, the change capacity of the institution and the characteristics of the innovation. Between each, there are critical dimensions which take the form of relationships necessary for change to occur. The processes essential to developing and maintaining these relationships are the critical elements in the change process.

Clearly, these two perspectives on change are not mutually exclusive, but they are some distance apart in terms of the assumptions made about change and people, as well as to the strategies employed to study and effect change. In addition to the different perspectives on change, there are other factors which make its study and execution in education a more complex phenomenon than in the field of agriculture or the area of rural sociology. House's (1974) discussion of the politics of educational innovation, Dalin's (1977) questions about ownership, and Lortie's (1975) sociological analysis of the schoolteacher provide a sufficient number of examples to illustrate that point.

House's work (1974) The Politics of Educational Innovation is effectively a political treatise of educational innovation, raising a number of issues related to the control and purpose of innovation. He poses questions about what is the political importance of educational innovation that is being developed and disseminated today. He argues that "The basic fact about a technocratic structure is that the status quo is maintained by

constant innovation" (House 1964, p.256). Education becomes much more dependent on the external controls of the industrial state, as those who consume innovations become dependent on those who produce them; the producers in turn, in the United States at least, are controlled by the industrial state. In House's view the industrial state only allows those innovations which fall within the parameters of the system.

In terms of the payoff of educational innovation, House continues:

> One of the features of the modern system is that those who must most forcefully bear the burden of perpetual innovation receive the fewest tangible rewards from the process, while those higher in the vertical division of labour benefit most. Built into the operation of the modern innovation system as a whole is integral inequality of benefit between individuals within a work place, between urban centres, between institutions within a society, between regions of a country, and between countries of the world. Those farther up the hierarchy benefit more than those farther down. (p.210).

Dalin (1977) draws our attention to the ownership question in change and innovation. While change can be conceived as something good or bad, innovation typically has a positive connotation implying that it is better. The question raised by Dalin is "Better for <u>whom</u>?" Since there are often winners and losers for every innovation, he contends that the question of who had gained, needs to be dealt with in connection with every innovation. He continues:

> The question of <u>who is deciding</u> is crucial. The "ownership" problem to an innovation is significant, not only because it might illuminate why and how the innovative idea has been introduced, but also because it might tell us something about the possibilities for successful implementation and dissemination in the system.

The difficulties associated with change and renewal in the schools have been underlined by a sociological analysis of the American teacher. Lortie (1975) documents convincingly a picture of conservatism, individualism and presentism as the main tenets of the ethos of teaching. Recruitment, socialization and work patterns lead to a highly conservative individual who teaches in the classroom. He argues that the tendency of teachers to function as individuals separated from peers emerges partly from the preservice training and partly from the realities of their work place. The concept of presentism, which implies a present-oriented rather than a future-oriented point of view, is equally understandable given the weak incentive system in education, and the fact that most teachers do not see their present work as a career. While his work was done with teachers in the United States, many of his arguments would seem to apply to teachers in Canada. As his analysis continues, he points out the implications for each of these tenets in terms of change. In each case they work against it.

Hopefully, from this discussion we have not only outlined some of the complexities of change but also alerted the reader to some of the limitations attending a study such as this which seeks to identify characteristics of adopters.

Some Specifics of Change and Innovation

Definitions

We will first provide definitions of the two terms, change and innovation, and then give an example where they apply. Change

is defined as an observable alteration in a programmatic or behavioral regularity. An innovation is an idea novel to the prospective user and something which is intended to lead to a specific change, thought to improve practice. Thus change is a subsuming, global concept and innovation a more deliberate, contrived attempt to affect the course of events. Change occurs; innovations are man's attempt to direct it. Most authors reviewed (Havelock, 1973; Miles, 1964; Rogers & Shoemaker, 1971; Dalin, 1977) included the notions of an alteration in behavior as applied to change and the concepts of novelty, improvement and specificity as applied to innovation. The term regularity is borrowed from Sarason's work (1972).

As an example, let us imagine that a teacher, who wishes to increase the amount of reading done in a classroom, has learned of an idea which involves the provision of a rotating book display housed in the classroom. After discussing the idea with peers and supervisors, he/she proceeds to implement the innovation by making arrangements to have the books on hand and by making a personal commitment to insure that the display is changed every two weeks. In this example, the regularity is the amount of reading done by students, which if altered will result in a change. The regularity is observable and the desired direction of change is quite obvious. The innovation was the notion of a continual changing book display with the intention of changing the reading habits of students.

The term implementation is also used frequently throughout

this report. We define implementation as the process by which a particular innovation is put into practice in a given situation. In the illustration above, the innovation can be said to have been implemented when the teacher has installed the book display and has changed his/her own behavior so that the book rotation over time has been accomplished.

To expand on these definitions we consider the work of Rogers and Shoemaker (1971) who indicate that an innovation is the product of the invention stage. It is their considered opinion that an innovation is a practice, idea or thing perceived to be new by an individual. A new practice, idea, or thing may be known to a person for a time although he may not have accepted or rejected it, nor even considered it favourable or unfavourable. They further suggest that innovations have five characteristics which pertain to adoption: 1) relative advantage, the degree to which an innovation is considered better than its predecessor, 2) compatibility, the degree to which the innovation is considered to be in accord with present values, experience and receivers' needs, 3) complexity, the degree to which an innovation is considered to be difficult to use, 4) trialability, the degree to which limited experimentation may be carried out with the innovation, and, 5) observability, the degree of visibility of results of the innovation.

In considering the kinds of decisions which might be made with regard to the adoption or rejection of innovations, Rogers and Shoemaker (1971) suggest three categories, 1) authority decisions, 2) collective decisions, and 3) optional decisions.

Authority decisions are those which a person in a superior power position forces on another individual and are very common in highly organized society. The receiving individual is told of an innovation decision reached by the decision maker and he is expected to adopt it. An example of an authority decision is a superintendent of schools deciding on a specific curriculum to be used in schools. Collective decisions are those which are reached through consensus of individuals involved in a social system. Once the decision is made, all members of the social system must conform with it. A school staff adopting a change in the phsyical structure of the school, such as a conversion to open area facilities, would be an example of a collective decision. Optional decisions are those which a person makes regardless of decisions made by other members of a social system. An individual's optional decision, however, can be influenced by social system norms and group pressures. An example of an optional decision is a teacher adopting a new method of teaching arithmetic in his own classroom.

These three types of innovation decisions can be placed on a continuum of adopter influence with authority decisions at one extreme, where adopters have no influence, and with optional decisions at the other extreme, where adopters have nearly complete responsibility for decisions. Collective decisions, where the individual has some influence in making the decisions, would be somewhere between the "collective" and "optional" extremes on the continuum.

A contingent decision, the sequential combination of

two or more of the authority, collective and optional decisions has been suggested by Rogers and Shoemaker (1971) as a fourth type of innovation-decision. They offer the example of a teacher who cannot decide whether to adopt or reject the use of new equipment until the school system has made the decision to buy one. As we have noted earlier, this view of innovation, which implies an R, D & D approach to change, is not without its critics. In particular, those who are critical of this perspective conceive a change more in an ecological and cyclical perspective.

The Effects of Communication Channels

An adopter, to realize the existence of innovations usually relies on some form of communication for information and Mort (1964) has suggested that the slow rate of adoption of innovations in education has been caused in part by a lack of communication despite some efforts that have been made to improve the dissemination of research findings through the publishing of journals and periodicals mainly for this purpose. Channels of communication within schools have been described as so poorly developed that little sharing of successful innovations takes place (Fox and Lippitt, 1964). Griffiths (1964) suggests a further problem for communication in education where feedback tends to foster a steady state and a restriction of communication in a system. For example, a school administrator who has been appointed from outside the school system is not likely to receive feedback regarding his actions since there are no well established

communication channels which could provide him with feedback. When an administrator is appointed from inside the system, informal feedback channels which have been well established in the past will continue operating to keep him in a steady state. This restriction of communication may result in poor or distorted knowledge of what is actually occurring. A similar situation may occur with newly appointed teachers.

It has generally been found that communication channels, the means by which messages get from a source to a receiver are another important component of change (Rogers and Shoemaker, 1971; House, 1974). Mass media communication channels such as television, films and magazines are useful in imparting knowledge of innovations, and interpersonal communication channels, involving face to face exchanges between persons are useful in changing attitudes toward the innovation. Mass media channels can reach large audiences quickly, create and spread knowledge and change weakly held attitudes. Interpersonal channels can permit a two-way flow of ideas between the source and the receiver and are more effective than mass media channels in changing strongly held attitudes (Rogers and Shoemaker, 1971).

Effective communication is more likely to occur when the source and receiver are homophilous, that is, have similarities in attributes such as beliefs, values, and social status because they are likely to live near one another, belong to the same groups and to be alike in personal and social characteristics (Anderson, 1974; Rogers and Shoemaker, 1971). House (1974)

contends that to control the flow of information and person-to-person contact is to control the flow of innovations.

The Effect of Time

Time is an important component of the adoption process where the potential adopter moves from first knowledge of the innovation to its subsequent adoption or rejection. The period of time for adoption by an individual is related to the stages in the adoption process, and Rogers (1962) has generalized that: 1) there is little evidence to indicate that adoptions of innovations are delayed by a lack of knowledge about the innovations, 2) awareness of the innovation occurs more rapidly than adoption, and 3) the process of selection probably causes members of a social system to become aware of a new practice at different times.

The adoption of new ideas or practices in a social system follows a predictable pattern over time. At the beginning, there is a slow early period of diffusion, involving a small group of innovators. This is followed by a time period of increasing acceleration as the innovation is accepted by the majority of persons involved. Another slower period of time follows in which the last remaining members of the social system adopt the innovation. This pattern of adoption over a period of time can be described as approaching a typical S-shaped curve when it is graphed on a cumulative basis (Rogers, 1962).

The Process of Adoption

The adoption process, occurring within the larger context of social change discussed in the last section, has been defined as a mental process, beginning when a person first hears about an idea, and continuing to its final adoption, (Rogers, 1962), and as a decision to make full use of a new idea that is considered the best course of action available (Rogers and Shoemaker, 1971). The adoption period for an individual starts when he becomes aware of a new practice or thing and continues until complete adoption or rejection has been reached (Rogers, 1962).

Rogers (1962) has developed a paradigm of adoption with 1) antecedents, 2) process, and 3) results shown in Figure 1. As shown, the antecedents are made up of two parts: 1) the identity of the individual, comprised of his sense of security, values, status, mental ability and cosmopoliteness, and 2) the individual's perceptions of influences in his situation, such as the norms of his social system, economic influences and the charactertistics of the unit he works in, which may have an effect on his adoption behaviour. The stages of the adoption process are discussed in a later section of this chapter.

More recently, Rogers and Shoemaker (1971) have constructed a paradigm of adoption (Figure 2) containing three divisions: 1) antecedents, the variables existing in the situation before a new practice was introduced, such as the personality and social characteristics of the individual and the degree of his felt need for the new practice, 2) process, including stages of knowledge,

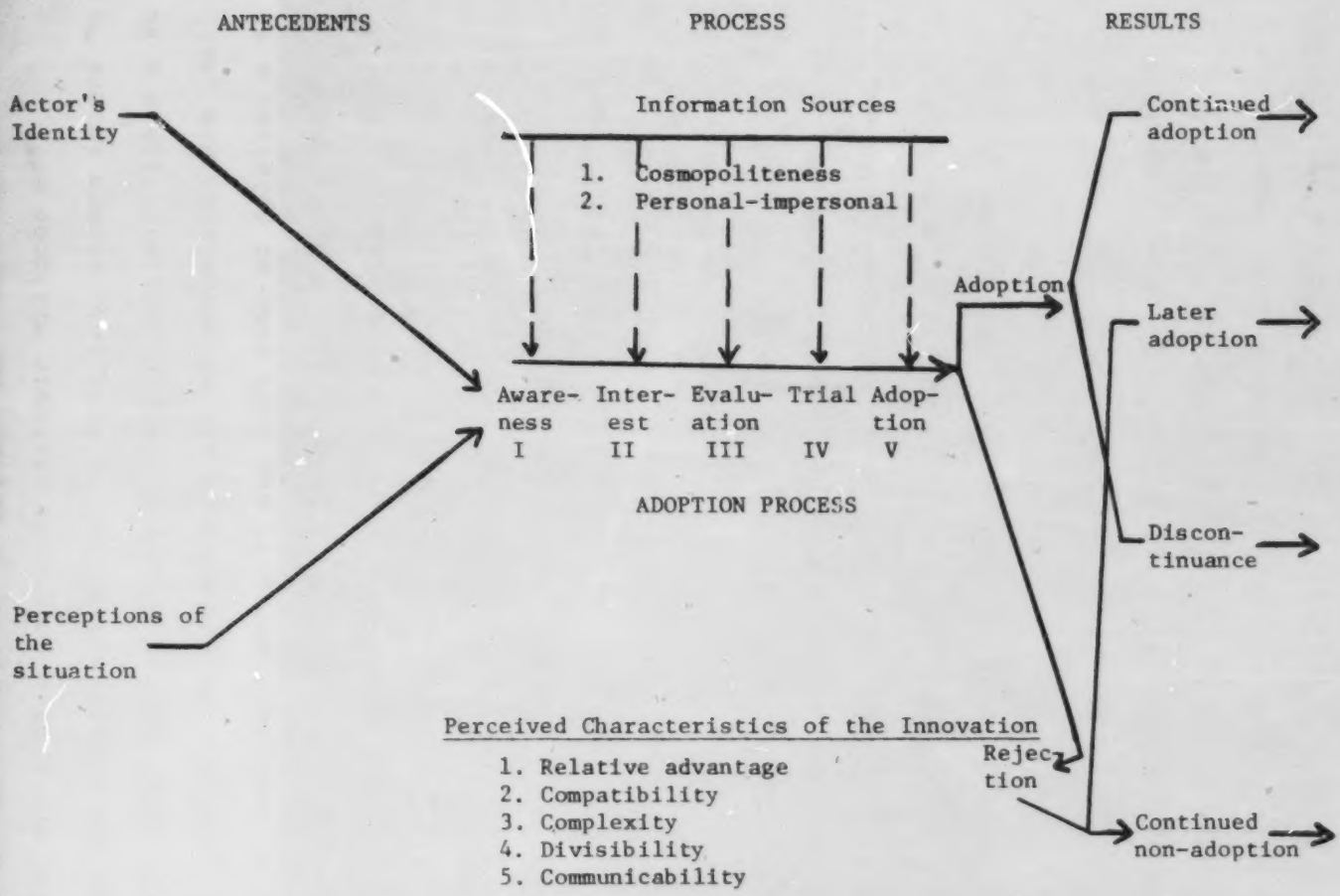

Figure 1

Paradigm of the Adoption of an Innovation by an Individual Within a Social System

(Rogers, Diffusion of Innovations, p. 306)

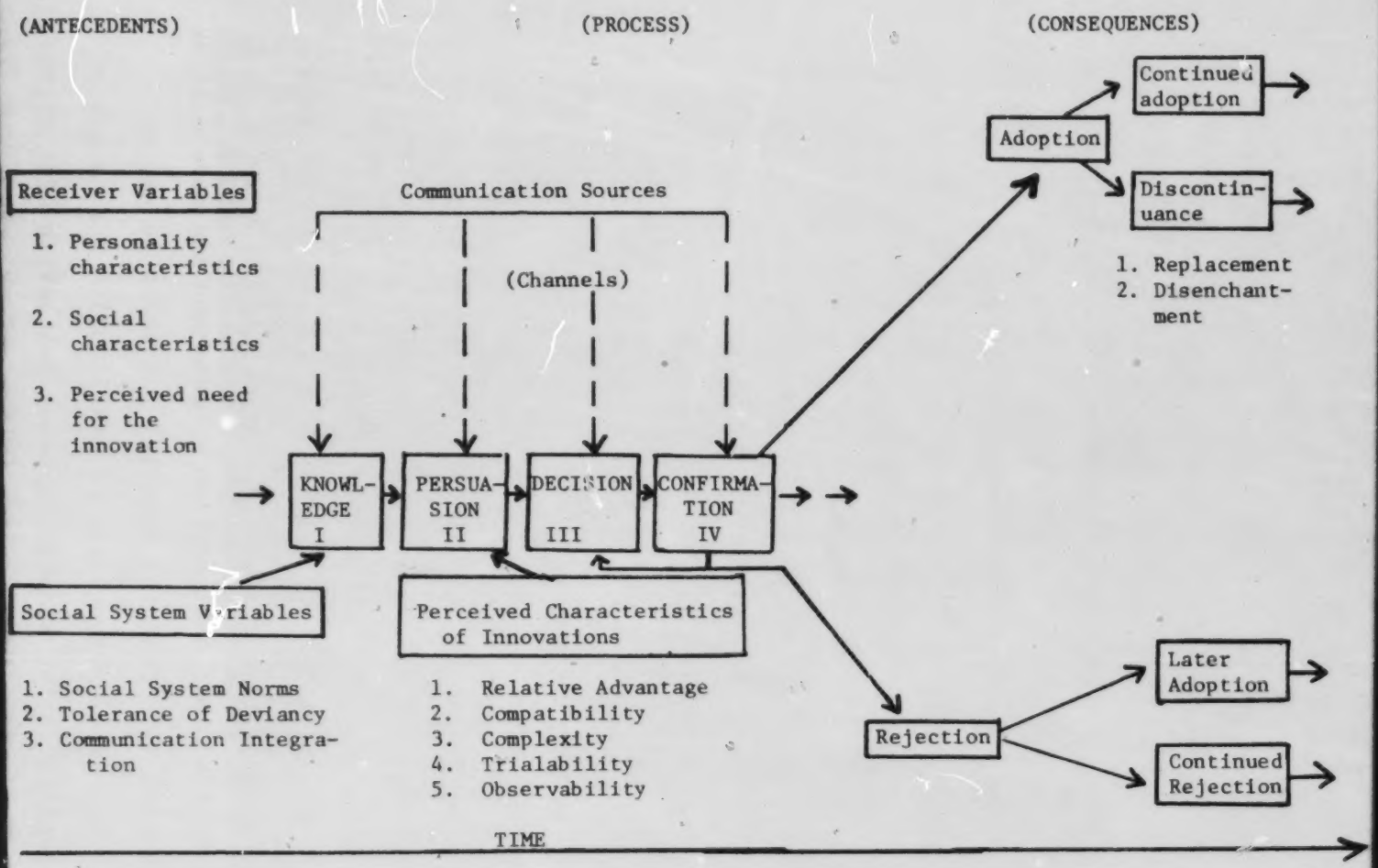

Figure 2

Paradigm of the Innovation-Decision Process

(Rogers and Shoemaker, Communication of Innovations, p. 102)

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persuasion, decision and confirmation, and 3) consequences, the culmination of the process in adoption with either continued adoption or discontinuance, or rejection with either later adoption or continued rejection. This model was designed to account for criticisms made about their earlier model and to incorporate recent research on the adoption process. Moreover, it uses terminology that better applies to a communication context such as Receiver Variables under Antecedents in the recent paradigm, and Actor's Identity, in the previous paradigm. The new model also defines the area of Social Systems Variables and specifically includes Communication Integration rather than broadly talking about perceptions of the situation. Both models are discussed in the section on adoption stages below.

Stages of the Adoption Process

The five stages of adoption shown under PROCESS in Figure 1 -- awareness, interest, evaluation, trial, and adoption show that adoption of new practices is not merely a single act of acceptance or rejection, but rather a process of stages (Beal, Rogers and Bohlen, 1957). For example, the adoption of a new home and farm practice is not an isolated, single act. It is further suggested that the adoption process and its complexities can be compared with learning theories put forth by social psychologists, (Beal, Rogers and Bohlen, 1957). The number of stages described in the adoption process has varied with different researchers, from three stages to six stages, (Anderson, 1974 and Lavidge and Steiner, 1961) while the use of five stage models

seems common and traditional (Beal, Rogers and Bohlen, 1957; Copp et al, 1958; Rogers and Shoemaker, 1971).

Using the five stage model, (Figure 1) definitions have been constructed to permit the model to be used as a research tool (Rogers, 1962, pp. 31-86).

1. Awareness: The individual knows of the existence of an idea or practice, but lacks details concerning its instrinsic nature and use. Awareness may begin as an involuntary act, a discovery by accident.

2. Interest: The individual becomes interested in the idea and seeks further basic information of a general nature.

3. Evaluation: The individual considers the knowledge he has about the idea and weighs the alternatives in terms of his own idea.

4. Trial: The individual has the empirical experience of observing the idea in use.

5. Adoption: The individual uses the idea of a full-scale basis in his operations and is satisfied with it.

The five stage model is not without its faults. Campbell (1966) has suggested that a model should include both rational and non-rational decision making and, innovation-oriented and problem-oriented decisions, a possible combination of four processes. Campbell also questions the assumption that the adoption stage is a natural outcome of the evaluation stage. He suggests that rejection of the innovation may also be a rational decision. It has been further suggested that if adoption is the use of an innovation, rejection is then the non-use of an innovation, and, therefore, if adoption is to be studied, then rejection should also be studied (Eicholz & Rogers, 1964). Verner and Gubbels (1967) have also questioned the traditional five stage model and

its assumption that adoption is the only rational response to innovation. They have suggested also that there are reasons for delaying or rejecting adoption, and that for analysis of adoption there exist five stages of response to innovations: unawareness, continuation in the adoption process, rejection, adoption, and discontinuance. This formal analysis has been substantiated by further research, (Alleyne and Verner, 1969).

Rogers and Shoemaker (1971) also admit that the five stage model has met with several criticisms: 1) although rejection of a new practice or thing is possible, the five stage model suggests that a decision for adoption always occurs and what is needed then is a term other than "adoption" to allow for either adoption or rejection, 2) the five stages although listed in order, often do not occur in that order and some (especially the trial stage) may be omitted altogether, while evaluation often occurs throughout the process, not just at one particular stage, and, 3) adoption is rarely the end of the process, as more information is sought in the confirmation of the decision, or the adopter may later move from the adoption stage to rejection.

In considering these criticisms of the five stage model as well as more recent research findings in the adoption process, and in attempting to align their view of adoption with the learning process and theories of attitude change, Rogers and Shoemaker (1971) have developed the four stage model (Figure 2) of the adoption process. This four stage model has not as yet been used extensively as a research tool (Anderson, 1974, p. 26). The stages in this model are:

1. Knowledge. The individual is exposed to the innovation's existence and gains some understanding of how it functions.

2. Persuasion. The individual forms a favourable or unfavourable attitude toward the innovation.

3. Decision. The individual engages in activities which lead to a choice to adopt or reject the innovation.

4. Confirmation. The individual seeks reinforcement for the innovation-decision he has made, but he may reverse his previous decision if exposed to conflicting messages about the innovation.

The four stage model includes three main parts: antecedents, process, and results. Antecedents include 1) receiver variables such as personality characteristics, social charcteristics of the individual and the strength of his perceived need for the innovation, and 2) social system variables such as norms of the social system, tolerance for deviancy, and communication integration.

The process involves the stages of knowledge, persuasion, decision and confirmation. At the knowledge stage, communication channels often provide stimuli mainly through mass media channels.

More interpersonal communication channels are used by the individual to form favourable or unfavourable perceptions of the innovation at the persuasion stage. Subjective risk, the degree to which the individual is unsure of the results of the new idea is present at the persuasion stage and, as mass media communications are too general to provide specific reinforcement, the individual turns to his peers for such reinforcement.

At the decision stage, the individual takes part in

activities which end with the choice to adopt or reject the innovation. A small-scale trial is often involved at this stage to help lessen the perceived risk of innovation. If an innovation cannot be given a small-scale trial it must be adopted or rejected as a whole. Innovations which can be given a trial are usually adopted more rapidly. If the innovation has at least a certain degree of relative advantage, most individuals who try the innovation will adopt it. The decision to adopt (or reject) and the actual use (or non-use) of the innovation can be seen as distinct behaviours. In optional innovation-decisions, these behaviours occur at the same time and in the same individual, while in authority decisions, the adopter (or rejector) and the user (or non-user) may be different persons, and the events of decision and use may occur at different times.

At the confirmation stage, the adopter (or rejector) seeks reinforcement for the innovation-decision he has made, but he may reverse his decision if he is subjected to conflicting messages about it. The confirmation stage may continue after the innovation-decision for an indefinite period of time.

The four stage model seems more appropriate for individual decision making than does the five stage model in that it provides for the logical rejection of an innovation as well as adoption, and for later moving from adoption to rejection or vice versa. This model is also highly suited for the optional innovation-decision made by the individual. However, the four stage model would have to be adapted to account for authority decisions where the person who adopts and the person who rejects may be different

individuals, and the decision to use the innovation and its actual use may occur at different times.

Adoption Scales

The notion of stages in the adoption process has been validated in research on implementation (Beal, Rogers, and Bohlen, 1957; Copp et al.1958; Medeiros, 1967; Rogers, 1962) and the use of adoption scales derived from the stages has been shown to be valid and reliable in measuring levels of adoption (Anderson, 1974). It has been suggested that these scales can be improved by an increase in the number of items, the correction of scores for "don't apply" responses, and the determination of the exact point when the practice was adopted, as well as whether it was adopted or not, (Rogers and Rogers, 1961).

Characteristics of Adopters

Socio-economic Characteristics

Adoption among teachers has been linked with younger ages (Belasco, 1973; Johnson, 1973; Leslie, 1970; Marcum, 1968; Washington, 1974; Wygal, 1966; Yegge, 1971). Rogers (1962) in his earlier review had generalized that earlier adopters were younger. However, one educational study found no significant relationship between age and teacher receptivity to change (Bridges and Reynolds, 1968). More recently Rogers and Shoemaker (1971) in a compilation of over two hundred studies on adoption in various fields have stated that there is no consistent relationship between age and adoption as approximately one-half of the studies on the subject indicate no relationship, twenty percent

of the studies show that they are younger and thirty percent show that they are older.

Gender may be a characteristic of teacher-adopters in that family responsibilities and varying career mobility may have made women less aggressive and less committed than men to their occupations, and while this situation is changing, men still dominate the authority structures (Corwin, 1970).

There is some evidence that higher educational levels and earlier adoption are related in education (Mort, 1964) and in other fields as well (Aiken and Hage, 1970; Rogers and Shoemaker, 1971). In one educational study it was found that the level of science training contributed to the effect of a teacher in-service programme, and that a wider base of knowledge put the more knowledgeable teacher at the forefront of his field and therefore provided him with more security (White, Raun and Butts, 1969).

There is evidence for teachers with high adoption scores generally having lengthy teaching experience (Holdaway and Seeger, 1968; Johnson, 1973) -- although one study found that innovators had fewer years of experience than traditional teachers (Washington, 1974), and another indicated that teaching experience and length of tenure were not related to teacher receptivity to change (Bridges and Reynolds, 1968). Further it was found that innovative school districts had more experienced teachers than non-innovative districts (Crandall, 1972). Corwin (1970) in a discussion of the relationship between experience and adoption among teachers suggests that experience may lead to change because of reinforcement

of status security, increased familiarity with the system, and the increased willingness to take risks in general.

Rogers and Shoemaker (1971) in their generalizations state that early adopters have higher social status than late adopters, and suggest that early adopters may be using the adoption process to get to higher levels of social status.

Personality Characteristics

Rogers and Shoemaker (1971) in their generalizations, stated that attitude is linked with adoption in that early adopters have a more favourable attitude toward change, education and science. This generalization was not supported, however, in a recent educational study which hypothesized that innovative teachers would be more receptive to new ideas and more amenable to change (Washington, 1974).

In a study of open schools, it was found that teacher attitudes do influence the degree of successful implementation of new teaching practices and that if teachers were involved in the development of innovative educational programmes consistent with their attitudes and teaching practices, there was a greater chance for success in the programme development (Bettas, 1974). Similarly, in a study of variables affecting the introduction of an innovative programme in aesthetics, it was found that philosophic commitment to the programme was the largest factor influencing its future use (Edwards and Wright, 1975). Further, the hypothesis that teachers with open belief systems would be more receptive to innovations than teachers with closed belief systems was confirmed

in an education study (Bridges and Reynolds, 1968).

According to Rogers and Shoemaker (1971), early adopters have a more favourable attitude toward risk and this has been confirmed in two educational studies reporting that teachers who scored low in cautiousness were more likely to accept change (Haven, 1973), and that teachers who adopt changes can be identified as more venturesome and self-assured than non-adopters (Townley, 1973). It has been suggested that if new practices are perceived as threats to status security, teachers will likely be reluctant to take the risk of adopting the new practices (Atwood, 1964; Lippitt et al, 1967). In discussions of risk-taking by teachers, both Cunningham (1961) and Hill (1971) state that teachers who want the authority to make changes, must also accept some degree of accountability for the effects of the changes. Hill further states that it must be assumed that some teachers are not in a social nor a financial position to demand changes or to accept the risk or accountability for change. For example, a teacher who cannot afford to move is unlikely to participate in making changes if there is the likelihood of an adverse reaction to a change he has made (Hill, 1971). Another investigation by Turner and Haley (1975) examining the use of new social studies curriculum material found that the holding of a permanent contract was a teacher characteristic affecting utilization of new material.

Early adopters have greater intelligence than later adopters according to Rogers and Shoemaker (1971), and in education, innovative teachers were found to be more intelligent than

non-innovative teachers (Townley, 1973).

Clinton and House (1970) suggest that teacher perception of a new idea or thing is as important as the idea or thing itself in determining levels of adoption while Biddle (1973), in a study of teacher perception of pupils, suggests the idea that teachers who perceive pupils as being more independent will be more likely to adopt changes than teachers who perceive pupils as being relatively dependent.

A person's view of himself will likely influence his perception of activities going on about him, and having a teacher make changes in his practices will require him to expand his perceptions of himself and his surroundings (Devore, 1971).

In a study of the relative effects of self-interest and altruistic motives of teachers in the implementation of new programmes, innovation was found to be related more to self-interest than to altruism (Rafky and Beckerman, 1971).

In their generalizations of personality characteristics of adopters, Rogers and Shoemaker (1971) further state that early adopters (1) have greater rationality, 2) have greater ability to deal with abstractions, 3) are less dogmatic, 4) are less fatalistic, 5) have higher levels of aspiration for education, 6) have higher levels of aspiration, and 7) more empathy than later adopters.

Communication Behaviour

Besides the generalizations of socioeconomic and personality characteristics of adopters, Rogers and Shoemaker (1971)

make several generalizations concerning the communication behaviour characteristics of adopters. They state that earlier adopters of new practices 1) have more social participation, 2) are more highly integrated with their social system, 3) are more cosmopolite (the adopter's reference groups are more likely outside rather than inside his social system), 4) have more contact with change agents, 5) have greater exposure to mass media communications channels and interpersonal communications channels, 6) seek information about new practices more often, 7) have greater knowledge 8) have a higher degree of opinion leadership, 9) are more likely to belong to well-integrated systems (where the downward flow of new ideas is faster, enabling members of such systems to learn about new practices quickly and, 10) are more likely to belong to systems with modern rather than traditional norms.

Similarly in education with regard to the generalization of opinion leadership, teachers who were early adopters in a vocational agriculture programme and who were indicated as sources of advice and information, were also identified as having more social participation than their peers (Johnson, 1973).

Jackson (1968), in discussing teacher satisfaction and accomplishment, suggests that teachers are left very much alone to determine what they are doing right and wrong, and what they must do to solve their problems and correct their errors. This suggestion implies that there will be an inward looking perspective which in turn restricts the diffusion of knowledge of new practices throughout the profession. This is borne out in studies

by Kreitlow (1972) and Stephens (1974). Stephens examined the relationship between social system properties and innovative teaching and found that increases in lateral communication facilitated the changing of teachers' behaviour. Kreitlow (1972) examined the influence of change agent teams on school systems and made the ancillary finding that school staffs have little knowledge of the process of adoption in the school system. Lippitt alludes to this inward looking perspective and communication of knowledge of new practices and he suggests that the adopter's sharing and offering of information of new practices is likely to be done by teachers who are more confident about themselves and their own classroom management (Lippitt, et al, 1967). He also states that different teachers will make very different responses to principals, as some teachers will adopt new practices more often with a warm, supportive principal, whereas other teachers will try new practices if the principal is impersonal. This view suggests that some matching of personal and supervisory styles may be important to the adoption process.

Miscellaneous

In addition to the literature of adopter characteristics classified into the socioeconomic, personality and communication behaviour categories, five sources which did not readily fall into these categories were selected for this review. One source viewed specialization of teachers as a characteristic while the other four sources were studies of work satisfaction, conceptual systems, verbal adoption and sociological differences between

career-bound and place-bound superintendents.

It has been suggested that specialization in an organization allows individuals to search for and to use new knowledge and practices to serve the interests of clients (Aiken and Hage, 1970). The more specialization which occurs, the greater the range of values in the organization and the greater the chance for occupational conflict, which may in turn, lead to change (Aiken and Hage, 1970). Corwin (1970) suggests that contrarily, each specialization has its own interests that may be threatened by changes promoted by other specializations, and this could lead to opposition to change.

Work satisfaction has been found to be related to adoption in that a person's satisfaction with his work should affect his view of it and this, in turn influence his decisions about adoption. Such a relationship has been found among teachers in West Pakistan (Khan, 1968).

If the language used in the school is metaphorical and literary rather than scientific and practical, teachers may be more interested in the language of adoption than in the actual adoption of new practices. That is, verbal adoptions may be entirely sufficient for some teachers (Smith and Keith, 1971).

The adoption of innovations was found to be quicker among career-bound superintendents while place-bound superintendents were found to be less involved in the social network of superintendents and to have lower status among officials. Further, the reference group of place-bound superintendents was formed by subordinates, who were not the most accurate in evaluating the

superintendents' work (Carlson, 1969).

Summary

A paucity of literature about the adoption process in education necessitated drawing on fields other than education for information regarding the components of change, the adoption process and adoption scales. Since Rogers and Shoemaker had synthesized much of the work done in the fields of anthropology, rural sociology, marketing and communications, the review drew heavily on their work. It was found that the main components of the process of adoption were 1) the innovation, including the characteristics of relative advantage, compatibility, complexity, trialibility, and observability, 2) the innovation-decision, including authority decisions, collective decisions and optional decisions, 3) communication channels, including mass media and interpersonal channels, and, 4) the dimension of time.

Rogers' model of the adoption process including antecedents, process and results were examined and some criticisms of this model was considered. Rogers and Shoemakers' more recent model, developed to allow for either adoption or rejection, and a reordering of stages was presented. This more recent model has not been used extensively in research. Moreover, it should be noted that most of the studies cited in this chapter with regard to the adoption process were from fields other than education.

Through the review, several socioeconomic, personality, communication behaviour and other characteristics of adopters were identified. The literature on socioeconomic characteristics

suggests that adoption was associated with persons of younger age, maleness, more education, and experience, and a higher degree of intelligence, a higher level of perception of the new practice, and possibly more confidence, aggressiveness, and inclination toward self-interest. Higher levels of social participation, integration with the social system, cosmopoliteness, and access to communication channels, teacher response to different principals and increased lateral communication were characteristics of adopters suggested by the literature on communication behaviour. In addition, several sources which did not readily fall into the categories of socioeconomic, personality and communication behaviour categories were selected for the review and were reported in a fourth category, called miscellaneous. They included two views of specialization and its effect on change, and the findings that work satisfaction was related to adoption while conceptual systems were not, that verbal adoptions may be sufficient for some teachers, and that career-bound superintendents are quicker to adopt innovations than those who were place-bound.

Through the review, the question of what characteristics distinguish adopters and non-adopters was substantially answered and a composite picture of a teacher who is an adopter can be constructed. An adopter will likely be younger, and will have a higher level of education, more work experience, a higher social status, a more favourable attitude toward change and risk, greater work satisfaction, a higher level of intelligence, a higher degree of perception of the new practice, higher levels of social participation and integration with his social system, more

cosmopoliteness, more access to communication channels, and possibly, more confidence, aggressiveness and inclination toward self-interest than a non-adopter.

The background to this study, which was presented in Chapter 1, emerged to a large extent from this review. As such, the points outlined there have not been repeated in this summary. The review convinced the research team of the extraordinarily salient and pervasive characteristic of change in the schools - its complexity. Not only are the schools complex social systems, but change is a political process and as such is subject to all the nuances and vagaries of power relationships and vested interests. Earlier educational research literature has shown some concern for adoption of new practices but seemingly contributed little to the understanding of the adoption process. There are, however, some recent and very compelling works such as those of Lortie, House and Dalin to suggest that the problems attending change in education are now being addressed.

As yet, educational research has contributed relatively little to knowledge of the characteristics of teachers who adopt new practices.[1] There is a good deal of useful literature on the socioeconomic and communication behaviour characteristics of adopters in fields other than education, as pointed out previously,

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[1]Apart from the studies cited in this paper, little educational research was found that contributed to the knowledge of the characteristics of teachers who adopt new practices. In comparison, Rogers and Shoemaker (1971) have drawn generalizations of adopter characteristics from a compilation of over two hundred studies from fields other than education.

and to a lesser extent in education, about school officials, such as superintendents and principals. However, few of the findings and generalizations of characteristics made in other fields have been confirmed or rejected by educational research.

This relatively small contribution of educational research to the understanding of the adoption process and the knowledge of characteristics may be attributed to conceptual shortcomings such as the neglect of 1) communication channels and, 2) aspects of the social system which may hinder or expedite change.

A further shortcoming is that most of the educational studies of the adoption process and of characteristics of adopters were innovation or organization-oriented (such as Marcum, 1968, and Belasco, 1973) and tended to ignore the individual adopter. That is, most educational studies focus on aspects of the innovation itself, or on aspects of the organization in which the innovation is being introduced, such as an elementary school. Of the forty-six educational studies cited in this review, only twenty focused directly on the teacher. To complement this innovation or organization-oriented focus, research which centres primarily on the teacher as a potential adopter is needed. At the very least, we should be looking at the individual teacher as an adopter within the structure of a social system as Anderson (1974) did with administrators of public school adult education.

It seems that more information is needed about 1) the actual process an individual teacher undergoes and, 2) the influences that affect a teacher making decisions about the

adoption or rejection of new practices, and such research needs to be done in education.

Chapter 3

PROCEDURES

Introduction

The objectives and design of the study required both the identification of teacher characteristics and a means of determining the degree to which teachers were adopting recommended practices. The study used the analytical survey method to examine the process of adoption as it pertained to seventeen teaching practices currently disseminated among elementary, public school teachers in British Columbia. The instrument, comprised of a questionnaire and structured interview questions (Appendix B), was used to gather personal and work situational data from each teacher subject, as well as to assess a total adoption score, based on the progress made by the teacher towards the acceptance of each of the recommended teaching practices.

The teacher characteristics were divided into personal, situational, and structural features. These are discussed in the section, "Selection of Independent Variables." The development, field testing and finalization of the instrument is described under "Scale of Adoption." The chapter closes with "Details of the Survey" which presents information concerning the sample, data collection, and data analysis.

The instrument constructed was to be a reflection of the intents of the study outlined in Chapter 1. The design developed by the research team drew upon methodological procedures empirically

established in other disciplines, and was intended to address concerns that had grown out of a literature review conducted by the senior author during 1975. As a result of that review, it had been concluded that further research should:

a) focus on the teachers;

b) replicate with teachers, the characteristics of adopters identified in other fields;

c) examine the relationship of the teacher-adopter to pertinent situational and structural characteristics of his/her social system; and

d) be empirical, focusing on data collected from teachers in his schools.

The desire to have the research focus on the teacher and to have an empirical orientation directed the research team to develop an instrument using the teacher as the unit of analysis. The use of interviews allowed us to obtain data at greater depth than was possible through using merely a questionnaire.

Selection of Independent Variables

In order to replicate with teachers the characteristics of adopters identified in other fields, as well as to examine the relationship of a number of situational and structural features of his social system, it was necessary to identify and categorize a number of these independent variables.

Personal Characteristics

The personal characteristics of the teacher pertain to qualities, attitudes, or activities closely associated with his own person and falling within his own decision making. Those

selected for investigation were sex, age, education, teaching experience, self-perception of professional status, self-perception of implementation of new practices, specialist training, perception of teaching as a career, career plans, preferences and perceived usefulness regarding professional days, in-service activities, course work and personal endeavours related to learning about new teaching practices, expectation of pupil achievement, work satisfaction and the perceived socioeconomic level of the teacher's own neighborhood. In addition, Chapin's Scale of Social Participation, scales of professional activities and professional reading were included. In Appendix B the items which are considered to reflect personal characteristics are identified.

Systems Factors

The systems factors examined in the instrument pertain to elements within the work situation of the teacher as well as structural features of his organizational system. The two distinct subsets formulated out of the systems factors are described as situational factors and structural features.

Situational Factors. The situational factors are work situation elements which are basically attributable to the organizational system. They are, however, elements over which the teacher might have some influence because of the interactional effect between the individual teacher and characteristics of his employment.

The situational factors selected for examination in the questionnaire include items designed to examine whether the teacher is a specialist in practice, the teacher's origin of

appointment, the number of schools worked in, the perceived ability of the pupils, what type of decision-making takes place in the school, whether the teacher receives encouragement to participate in in-service training and curriculum development, whether he receives encouragement to try new classroom practices, the degree to which his colleagues and his principal are perceived to implement new practices and the perceived socioeconomic level of the neighbourhood of the school. Questions regarding the teacher's professional contacts with the principal and with outside personnel regarding classroom practices are included in the interview schedule.

Structural Features. The structural features examined in this investigation are those aspects of the organizational system over which the individual teacher has little influence or control. But, because these features are a part of the system in which the teacher works, they may influence the adoption behaviour of the teacher.

The structural features selected for inclusion in the instrument are designed to examine the class size of the respondent, and several features of the school itself, including size, grouping of classes, existence of a staff committee and the number of administrators.

In this section we have simply listed the independent variables characteristics under the three headings, with very little comment. A more detailed rationale is provided for each of these features in Appendix C.

Scale of Adoption of Recommended Teaching Practices

Development

The dependent variable, the Scale of Adoption of Teaching Practices, was developed by the research team over several months. At the outset, a list of teaching practices was compiled by asking classroom teachers, administrators, other school personnel, graduate students in education, and faculty associates and faculty members of Simon Fraser University to indicate teaching practices which they would recommend to colleagues as being useful. Over one hundred suggestions were received and from these a selection of seventeen practices was made by the team using the criteria of 1) having been recommended by educational research literature, 2) being recent, and, 3) having capability of being implemented by an individual classroom teacher. This selection process assured face validity to some extent.

The seventeen recommended teaching practices finally selected by the researchers comprise the List of Teaching Practices provided in Appendix B, Part II and were subsequently to be used with Rogers' (1962) five stage model of the adoption process in order to arrive at an adoption score for each respondent.

A total score for adoption of these seventeen recommended teaching practices was calculated for each of the teachers in a manner similar to that used by Anderson (1974) in his study of adult education directors.

The following five questions based on Rogers' model of the adoption process were asked by the interviewer to determine

which stage the teacher had reached for each of the practices:

1. For awareness: Do you know about this teaching practice?
2. For the interest stage: Have you sought any additional and more detailed information on this practice?
3. For evaluation: Have you given any consideration as to whether you can apply this practice to your teaching situation?
4. For trial: Have you tried out the practice to see if it applies to your teaching situation?
5. For adoption: Have you adopted this practice as a regular part of your teaching?

When it had been basically determined at what stage the teacher had reached in the adoption process with these five questions, the teacher was encouraged to discuss in greater detail what she/he knew about the practice, how it had been tried and when it had been adopted as a regular part of her/his teaching.

The adoption score for each of the teaching practices was based on the following scoring system:

0 for non-awareness	3 for evaluation
1 for awareness	4 for trial, and,
2 for interest	5 for adoption.

The total possible score a teacher could receive then would be 85 (5 x 17 practices) if he had fully adopted all of the recommended practices.

Field Testing

To field test the adoption scale of recommended practices, the scale was administered to ten teachers in a known situation where a careful examination had shown that five of the teachers could be classed as adopters because of their history of trying new practices and where five were clearly non-adopters on the basis

of their habit of being quite reluctant to adopt recommended practices. The ten teachers were interviewed using the instrument and the scores from those interviews are shown in Table I.

Table I

Results of Field Test of the Scale of Adoption of Recommended Teaching Practices

Teachers Judged to be the High Adopters			
Teacher	Adoption Score		
1	71		
2	62		
3	58	Mean = 66.6	
4	72		
5	70		$t = 8.89$
			$p > .001$

Teachers Judged to be Low Adopters		
Teacher	Adoption Score	
6	39	
7	29	
8	34	Mean = 33.2
9	26	
10	38	

These data provide evidence for the criterion-oriented validity of the instrument and are consistent with Rogers' work (1962, 1971) which suggests that such scales are reasonably valid, reliable and internally consistent.

Finalizing the Instrument

After the developmental process described above was completed, copies of the tentative draft of the instrument were printed and circulated among 1) graduate education students at Simon Fraser University, 2) teachers and administrators in the lower mainland and, 3) the staff at the Educational Research Institute of British Columbia to solicit criticisms and suggestions in order to assure face validity before the instrument was finalized. The instrument was then revised by the research team according to the suggestions and criticisms received.

Details of the Survey

Sample

Because of the large number of elementary school teachers in the lower mainland region of British Columbia, it was necessary in conducting the survey to take only a sample of the total population. The sample of one hundred elementary school teachers was random both on the school and the school district level. In other words, in selecting subjects, one elementary school out of each of the ten lower mainland school districts was randomly chosen. Ten teachers of that school were then, in turn, randomly sampled. Those schools with fewer than that number of regular classroom teachers were initially excluded from the selection.

Thus, the population represented is that of schools with ten or more regular classroom teachers on staff. Smaller schools in districts as well as private institutions were not included in the sample. It was necessary to conduct a second sampling in two of the districts because other projects were underway in the school or the staff as a whole decided it did not wish to participate in the investigation mainly because of the time involved.

Data Collection

The main data collection for the study was obtained by personal interviews with the various teachers at their respective schools during the months of April to June 1976. The time involved for an interview ranged from a half hour to an hour, if there were no interruptions and minimal digressions. The interview times were arranged at the convenience of the teacher and usually occurred before school, during lunch hour or immediately after school. In two schools, the teachers were released during regular teaching time.

The interview schedule was structured mainly to obtain information to calculate a total adoption score (the dependent variable) for each teacher, based on the stage of the adoption process for each of the recommended practices (Appendix B, Part II). When it was basically determined at what stage the teacher had reached in the adoption process, he/she was encouraged to discuss in greater detail what was known about the practice, to what extent it had been considered, whether it had been tried, or how extensively the teaching practice had been adopted. This detailed information was noted on the interview schedule for

subsequent re-checking, assessment, and final scoring by the interviewer, in preparation for entry on to computer coding sheets.

At the time of the interview, the teacher subject was also provided with a questionnaire designed to obtain both personal information and work-situation information (Appendix B, Part I and II). These constituted the sets of independent variables to be investigated for their relationship to adoption.

The questionnaire section was purposefully designed for quick and easy completion. The intention was to collect that form on the same day of the interview or as soon as possible after it. Unfortunately, one teacher chose not to complete and return the questionnaire. Although she had participated in the interview and was contacted several times subsequently for the remaining material, she refused to supply it and remained negatively predisposed toward the research project. Thus, the sample was reduced to ninety-nine subjects.

Another difficulty with the data collection relates to the questionnaires. The problem arose from several other respondents who chose to return their forms at a later date. Unfortunately, some of these teachers did not complete all of the items, thus causing missing cases in some of the categories and somewhat complicating subsequent analysis of the data.

Data Analysis

After completion of the field interviews, followed by an immediate field check, the interview schedules with their accompanying questionnaires were office coded, and the data entered

on to computer code sheets. This data was key punched on to IBM cards and transferred to tape for use by the computer at Simon Fraser University Computing Centre and at the University of Oslo.

Standard correlational analysis and ANOVA computer programs were used at both centres, in order to assess significant relationships among means of teacher adoption scores with some sixty-six independent variables. Since this procedure was to be employed basically as a "filtering" device, tests of significance were made at the 10 per cent level. Thus, variables showing correlations or F values above this level of significance with the adoption score were precluded from further analysis, as they would seem to lack predictive power. Multiple step-wise regression analysis was subsequently used to determine the proportion of variation in adoption scores explained by the twenty-seven significant independent variables remaining after the initial "filtering." Tests of significance at this second stage of analysis were reported for both the .05 and .01 level. In addition, the data were examined by the use of factor analysis on the independent variables. Four sets of factor scores were developed and these too were entered into a regression analysis.

Summary

The first half of this chapter has briefly described the procedures involved in the development of the instruments including 1) the guidelines drawn from a previous review of the literature 2) the selection and identification of sixty-six independent variables into the categories of personal characteristics,

situational factors, and structural features 3) the development, field testing and finalizing of the Scale of Adoption of Teaching Practices, an instrument to be used in determining a total adoption or implementation score for each teacher, which was to constitute the dependent variables. The second half of the chapter pertains to details of the survey and provides information concerning the sample, data collection, and data analysis.

Chapter 4

RESULTS OF THE STUDY

The selection of variables contained in the instrument was done primarily to identify factors related to scores on the adoption scale. However, the preliminary analysis of the data provided information useful in describing general characteristics of the sample studied, and a number of these variables were of interest because of their pertinence to other research. Both aspects are discussed under "General Characteristics" and "Relation to Other Works." Following these, the results of the regression analysis is presented.

General Characteristics

Of the ninety-nine teachers selected from ten schools in the lower mainland of British Columbia, 70 percent were females and 30 percent males; 47 percent were between the ages of twenty-six and thirty-four inclusive, with 64 percent, thirty-four years of age and younger. At the time of the interview, 68 percent had attained degree status or higher. However, many had achieved their level of education on the job. For example, the 59 percent who reported having only undergraduate training when they began teaching, was reduced to 37 percent at the time of the interview.

The majority of those interviewed had received their training during the 60's and 70's from universities in British Columbia. The breakdown was 44, 22, and 3 percent from the University of British Columbia, Simon Fraser University and the University of

Victoria respectively, with 31 percent having been trained in other parts of Canada, the United States and Britain. Sixty percent saw themselves as generalist teachers and 76 percent reported that fewer than half their classes were in a specialist curriculum area. Ten or fewer years of experience was reported by 66 percent of the respondents.

Information about the classrooms, the schools, and the districts in which they were located was also obtained. Seventy-three percent of the classes were heterogeneous with the modal class size in the range of 26-30 students. In 75 percent of the schools there were two administrators. With regard to socio-economic level, 87 percent of the respondents reported teaching in a middle class area, 5 percent in an upper class district and 8 percent in a lower class district.

Thus, in very general terms one could describe the typical respondent in the sample as a female who entered teaching within the last decade, who was trained in British Columbia, and who received part of that training on the job. She taught in a heterogeneous classroom in a school in a middle class area, having two administrators, and a staff committee. However, as with all generalizations of this type, the exceptions are many which can be seen by perusing the frequencies provided in Appendix A-1.

Relation to Other Works

Since descriptive data collected from the variables concerning professionalism, in-service and job satisfaction were not unlike those collected previously in other studies, it seemed that

comparisons would be of interest. In addition, the perceptions expressed by teachers on the usefulness of different activities and the encouragement received from peers and administrators would appear to be of general concern. Thus, both are reported.

On questions dealing with the teacher's perception of his or her professional behaviour, responses were highly positive. When asked to describe their work on a scale ranging from highly professional to not at all professional, 84 percent saw themselves as highly professional or professional. In a self report question which asked about the frequency with which they had implemented new practices, 79 percent responded in the "often" or "very often" category. These data tend to follow patterns similar to information reported by an NEA study conducted during 1967 in the United States (Lortie, 1975).

Another measure of professionalism is the degree to which teachers perceive their work as a life-long engagement. Lortie (1975) has described the career aspirations of teachers, particularly beginning teachers, as temporary in the case of most men and as an "in and out" engagement for women. In support of his own findings, he cites Mason's work where it was found that only 27 percent of men and 16 percent of women projected uninterrupted futures in teaching. From these and other findings, a picture of temporariness among those in the teaching profession emerges from Lortie's work. Because of different interview techniques comparisons are risky between this study and the work referred to by him. However, when teachers from the lower mainland were asked if they perceived teaching as a career, 85 percent responded

positively. Twenty-five percent did indicate planning to move to another position in the school system, splitting about equally between administration and teaching-like occupations. The results from the lower mainland study would indicate that the notion of temporariness evident from Lortie's work conducted in the United States, does not exist to the same degree in Canada.

In the case of in-service education, Newton's work in Saskatoon (1962) and Lortie's work in five towns (1975) provide a further background against which to compare the results of this study. In Newton's study, it was found that teachers considered their peers the most valuable source of new ideas followed by the principal, supervisors and university persons in that order. Lortie's work did not deal directly with in-service. However, from his concept of individualism, a tenet of his teaching ethos resulting from an exhaustive sociological study, one would predict that teachers would favour those professional activities they had organized for themselves, as opposed to those planned by collective groups. With this as a backdrop, let us now turn to the results from this study which asked teachers their preference for different types of in-service activities.

When asked what form they preferred the organization of professional days to take, the responses from teachers were as follows:

district-wide activity	33%
school-wide activity	11%
team of teachers organizing an activity	37%
individual self-organized activity	18%

Those activities organized on a district-wide basis and by teams of teachers have preference over those organized by teachers themselves and those organized on a school-wide basis. From Lortie's work, one would have predicted the modal response to be individually organized activity rather than the team-oriented type as shown in these results. These data are somewhat more consistent with Newton's findings in that teachers have preference for work organized by peers. But one would have expected the school-wide rather than district-wide activity to have received more preference for these results to be consistent with those obtained from the sample of teachers Newton studied.

The data in Table 2 summarize the results from eight items which asked teachers to indicate the usefulness of different types of professional in-service activity including those four discussed in the previous paragraph. To the extent individual activity seems to possess a higher degree of usefulness than activity organized at a more remote level such as the district, the results support Lortie's notion of individualism.

Two principles pertaining to the usefulness of the activities provided in Table 2 are in evidence - the level of organization and the degree of selection. The four activities under professional days have a clear gradient in terms of level of organization as we have stated before. The other four could be ranked in terms of their remoteness of organization in this order, credit courses, non-credit courses, in-service work and individual activity. On that basis the results would suggest that the more remote the activity in terms of organization the less useful it

TABLE 2

USEFULNESS OF DIFFERENT TYPES
OF PROFESSIONAL ACTIVITIES

Type of Activity	Variable Appendix A	Degree of Usefulness					$\bar{X}$	Correlation With Adoption Score
		Very Useful	Useful	Neither	Of little Use	Of No Use		
Professional Days Organized at/by District Level	16	14(16)*	48(53)	16(18)	10(11)	2(2)	2.31	.15
School Wide	17	13(14)	55(59)	11(12)	14(15)	0(0)	2.28	.20
Teams of Teachers	18	33(39)	41(48)	9(11)	2(2)	0(0)	1.77	.16
Individuals	19	38(42)	34(38)	14(16)	3(3)	1(1)	1.83	.19
Inservice Work Other Days	23	42(45)	40(43)	4(4)	2(2)	0(0)	1.52	.76
Individual Activity	34	35(44)	38(48)	6(7)	0(0)	1(1)	1.68	.78
Credit Courses	27	12(16)	30(41)	15(20)	10(14)	1(9)	2.18	
Non Credit Courses	30	11(18)	38(61)	10(17)	1(1)	2(3)	1.45	

* ( ) = percentage

was perceived. The concept of selection does not apply to the first four items in the table because teachers exercise little selection among the different type of professional days. In the case of the remaining four items, however, there is clearly a selection process at work. Teachers undoubtedly select non-credit courses and individual activity, and exercise some degree of selection in in-service work. By contrast, in the case of credit courses, once the selection of a program of studies has been made, the selection of courses may have been greatly reduced. Using this as a basis for considering the results, it is evident that a positive relationship exists between the amount of selection exercised by the teacher and the perceived degree of usefulness.

It should be noted when considering credit and non-credit courses that over one-half of the teachers indicated they rarely or never participated; but 89 percent said they engaged in some other type of endeavor to learn more about their work.

The importance of communication networks and person-to-person contact was described earlier. It would seem only reasonable that the extent to which one tries new practices and participates in in-service education would depend on encouragement provided through personal contact. The results from eight items on the questionnaire which asks teachers if they received encouragement to do in-service training and try new practices are provided in Table 3. The source of encouragement is also included. The general encouragement teachers receive to do curriculum development was also asked and is listed in the same table.

TABLE 3

ENCOURAGEMENT RECEIVED BY TEACHERS FROM DIFFERENT SOURCES
TO PURSUE INSERVICE, DO CURRICULUM DEVELOPMENT AND TRY NEW PRACTICES

Encouraged to	Source of Encouragement	Scale (Percentage Response)					N	$\bar{X}$
		Very Frequently	Frequently	Occasionally	Rarely	Never		
Attend In-Service Training	Principal	9	27	29	24	11	90	3.02
	Teaching Colleagues	0	16	42	28	15	89	3.42
	School Officials	3	12	33	23	19	90	3.47
	Staff Committee	1	11	21	31	31	72	3.89
Participate in Curriculum Development	General	4	10	29	20	26	89	3.61
To try New Curriculum Practices	Principal	0	15	3	24	23	89	3.54
	Teaching Colleagues	2	17	35	24	13	91	3.31
	School Officials	3	15	36	26	21	89	3.46
	Staff Committee	0	5	12	37	46	57	4.23

From an examination of the results three points are obvious. First, the teachers perceive the principal giving more encouragement to in-service than to the use of new practices. This is evidenced both by the difference in the mean values and the frequencies. Second, the role of staff committees does not appear to be one of encouraging peers to engage in in-service or in trying new classroom practices, although such committees existed in almost three-quarters of the schools surveyed. This finding takes on added concern if previous research applies, indicating that teachers attend more readily to the suggestions of their peers than other individuals or groups. Third, teachers do not see themselves as receiving frequent encouragement to do in-service, try new classroom practices or do curriculum development. The modal response is "occasionally" for all items except where staff committees are providing the encouragement and there the modal response is "never."

The teachers indicated their degree of job satisfaction on four items drawn from the Morse index. From comparative data (NEA, 1967), one would expect the responses to cluster toward the positive end of the scale. This was, indeed, found to be the case as 96 percent reported that they were moderately satisfied or very satisfied with their work; 95 percent, that they frequently or very frequently had a chance to do things they could do best; 92 percent felt they frequently or very frequently gained a feeling of accomplishment from their work; and 97 percent found their work important or very important.

Analysis of Results

In order to examine in close detail the sizeable body of data obtained from the completed questionnaires and interview schedules, several steps were followed in the analysis. First, there was an initial screening of variables, using both analysis of variance and correlational analysis for continuous variables in order to eliminate those which seemed to have no predictive power, with regard to the dependent variable . This procedure was successful in reducing the number of independent variables from sixty-six to twenty-seven (shown in Table 4) where abbreviated descriptions for the variables are also provided. Since this procedure was in effect to be a "rough" filtering device, the 10 percent level of significance was used. Accordingly, independent variables showing correlations or F values above this level of significance with the adoption score were dropped from further analysis.

As a means of unravelling the complex interrelationships among the remaining twenty-seven independent variables and evaluating the contribution of each to the dependent variable, multiple regression analysis was employed. A step-wise regression procedure was followed in which the three sets of independent variables - personal, situational and structural - were entered one set at a time (Tables 6 and 7). At this second stage of the analysis, the 5 percent level of significance was used. Those variables which were found to be significant contributors to the adoption scores from each of the three sets were then combined and entered as a group, as a third stage in the analysis (Table 8).

TABLE 4

NUMBER OF VARIABLES INCLUDED IN THE QUESTIONNAIRE AND INTERVIEW SCHEDULE RELATED TO THE ADOPTION SCORES

Type of	Original Number included in Questionnaire and Interview Schedule	Number Related to Adoption Scores
Personal	40	19
Situational	21	5
Structural	5	3
Total	66	27

DESCRIPTION OF VARIABLES RELATED TO ADOPTION SCORES IN THE THREE CATEGORIES

Personal

1. Current level of education
2. Recency of education
3. Self perception as an innovator
4. Career plans

   Perceived usefulness of Professional Days Organized

5. - on a district wide basis
6. - on a school wide basis
7. - by teams of teachers
8. - by individual teachers
9. Participation in inservice other than professional days
10. Perceived usefulness of in-service programs
11. Perceived usefulness of personal endeavors
12. Work satisfaction (to do one's best)
13. Work satisfaction (importance)
14. Social participation (Chapin's Index)
15. Amount of Professional Activity
16. Amount of Professional Reading
17. Participation in Non-Credit Courses
18. Recency of Non-Credit Courses
19. Recency of individual endeavor

Situational

1. Perceived ability of pupils
2. Encouragement for Inservice from principal
3. Encouragement to do curriculum development
4. Encouragement to try new practices
5. Encouragement to try new practices from the principal

Structural

1. Class size
2. Grouping of classes
3. Existence of staff committees

In addition to the above procedures, a factor analysis was run on the independent variables in order to identify clusters of items. Because these variables had been arbitrarily grouped into personal, situational, and structural factors at the outset of the study, it seemed purposeful to validate this grouping as well as to identify clusters of items. Four sub-scales emerged that were interpretable and appeared to have merit for subsequent analysis (Table 5). The four clusters do not correspond to the previous categorization but included what we have relabelled as peer group, teaching experience, individualism, and work satisfaction categories. Subsequently, a score for each of these factors was generated and the four were entered into a regression equation (Table 9).

Personal Variables

When the nineteen personal variables were entered into the stepwise regression analysis, five were significant contributors to the variance in adoption scores.* These are shown in Table 6 where twelve of the nineteen variables are shown with the various statistics resulting from this analysis. The seven not included were dropped from the final regression analysis run

*Generally, the 5 percent level of significance was used as a critical level beyond which variables were considered as contributing significantly to the variance of the dependent variable. However, two of the variables in this set have probability levels of .063 and .056 respectively, but they are included because the r^2 drop was in the range of 4 percent in each case, which seemed an important contribution.

to reduce the effects of missing data. Moreover, in earlier runs these items were found to contribute less to the variance of adoption scores than those remaining in the analysis.

The recency of in-service which was individually planned accounted for 12 percent of the variance and membership in and attendance at meetings of professional associations accounted for an additional 8 percent (Table 6). Both related to the teachers' professional outlook and behaviour, and it should not be surprising that they are the significant contributors to the adoption scores since previous research reported by Anderson (1974) pertaining to directors of adult education, indicated a strong relationship between professionalism and adoption. In the case of the recency of the in-service experience, it is important to note the content within which the variable was determined. Teachers were asked if they engaged in endeavors to learn more about their work, and 89 percent indicated they did. After indicating the nature of the endeavor, they were asked to indicate when they last engaged in that endeavor. It was the last variable which contributed to the variance of the adoption scores, not the first two, with recency related positively to high implementation of classroom practices. We interpret this to suggest that those who have engaged in activities of a more recent nature are probably the most active in terms of reading, talking with colleagues, visiting other schools, attending conferences and serving on curriculum development committees. These were the activities identified as the more important ones by the respondents (Appendix A-2, item 32).

When teachers were asked to identify the extent to which

TABLE 5

CLUSTERS OF ITEMS EMERGING FROM FACTOR ANALYSIS

Factor	Question	Item (Abbreviated)	Factor Loadings
Peer Group	17	Usefulness of professional days-school wide	.44
	18	Usefulness of professional days-teams of teachers	.29
	45	Degree to which colleagues try new practices	.58
	52	Principal encouraging participation in in-service	.63
	53	Colleagues encouraging participation in in-service	.74
	55	Staff committee encouraging participation in voluntary in-service	.54
	56	Staff committee encouraging participation in in-service	.54
	57	Encouragement in Curriculum Development	.46
	59	Colleagues encourage trial of new classroom practices	.78
	60	Staff committees encourage new classroom practices	.61
	61	Principal encourages new classroom practices	.71
Teaching Experience	2	Age	.68
	4	Year began teaching	.90
	7	Training institution	.39
	8	Years employed	.90
	50	Schools employed	.60
Individualism	20	Participation in in-service other than professional days	.81
	23	Usefulness of self planned in-service	.49
	24	Recency of in-service	.61
Work Satisfaction	35A	Satisfaction in work	.80
	35B	Doing what one prefers	.78
	35C	Feeling of Accomplishment	.67
	35D	Importance of work	.60

they attended meetings of and held office in professional associations, 94 percent reported attending such meetings and 24 percent held one or more offices (Appendix A-1). The contribution of these factors to the variance indicates that a significant relationship exists between the membership and active involvement in professional activities and the adoption of new practices.

With regard to other aspects of professional activities, the significant contributors to the variance of the adoption scores all had to do with the perceived usefulness of professional in-service activity organized on a school-wide basis, by individual teachers, or as an individual endeavor. The contribution of these three variables was in excess of 4 percent in each case toward the variance in adoption scores (Table 6). From these five items pertaining to professionalism, not only could one infer that participation and involvement in such activities is necessary for obtaining a high degree of adoption, but it is also important that the involvement be seen as being useful

As indicated by the data, there were many personal/socio-economic variables which apparently did not contribute to the variance of the adoption scores used in this study. Factors such as sex, age, level of education the respondent had reached when he began teaching, experience, specialist training and a number of others which were included in the questionnaire because they had been identified with adoption in earlier studies, were not found to be significant in this study. The Chapin's Index of Social Participation which had correlated .22 with adoption scores during the initial stage of analysis failed to show levels of significance

in the regression analysis. Apparently, its contribution to the variance in adoption score was effectively subsumed by other variables.

Situational Variables

After the initial screening, only five of the twenty-one situational variables originally selected for investigation showed any significant relationship with adoption scores (Table 4). When these five situational variables were entered into a step-wise regression analysis, only one was found significant at the .05 level, accounting for only 5 percent of the variance. This was the variable dealing with encouragement from the principal for the teacher to try new classroom practices (Table 7). Such a finding certainly seems reasonable in that teachers would very likely have greater confidence to try a new practice, if they were to receive encouragement to do so from the principal. What is somewhat surprising is that this factor and three others in the set pertaining to colleague support did not account for more of the variance in adoption scores. This phenomenon probably indicates the extent to which teachers are "individualistic" and isolated in their pursuit of change, especially with regard to the implementation of the new classroom practices.

Structural Variables

Of the five structural factors considered, three remained after the initial analysis. These were entered into a step-wise regression equation, and two were found to contribute significantly for approximately ten percent of the variance in adoption scores.

TABLE 8

REGRESSION ANALYSIS OF SIGNIFICANT PERSONAL CHARACTERISTICS PERTAINING TO ADOPTION

Step Number	Variable Entered Number	Description	Multiple R	R Squared	R Square Change	F to Enter	Simple r	Significance df	Significance Prob.
1	33Yr	Recency of personal inservice	.3486	.1216	.1216	8.57	.35	1/62	.005
2	B Tot	Membership & attendance in Professional Association	.4443	.1974	.0789	5.77	.30	2/61	.019
3	17	Usefulness of Prof. days - school wide basis	.4926	.2427	.0453	3.59	-.20	3/60	.063
4	19	Usefulness of Prof. days - individual teachers	.5371	.2885	.0458	3.80	-.16	4/59	.056
5	34	Usefulness of individual endeavours	.5783	.3344	.0459	4.00	.18	5/58	.050
6	20	Inservice other than Prof. days	.6023	.3627	.0283	2.53	-.19	6/57	.117
7	9	Self Perception as an innovator	.6174	.3812	.0184	1.66	-.33	7/56	.202
8	5	Level of Education	.6263	.3922	.0110	.99	.16	8/55	.322
9	18	Usefulness of Prof. days - teams of teachers	.6359	.4043	.0121	1.099	-.20	9/54	.299
10	A	Chapin's Index	.6694	.4088	.0045	.4019	.22	10/53	.529
11	358	Opportunity to do what one does best	.6411	.4110	.0022	.1978	-.16	19/52	.658
12	6	Recency of Educ.	.6415	.4115	.0005	.0402	.16	12/53	.842

TABLE 7

REGRESSION ANALYSIS OF SIGNIFICANT SITUATIONAL FACTORS AND STRUCTURAL FEATURES PERTAINING TO ADOPTION

Step Number	Variable Entered Number	Variable Entered Description	Multiple R	R Squared	R Square Change	F to Enter	Simple r	Significance df	Significance Prob.
				- Situational Variables -					
1	61	Encouragement from Principal to try new classroom practices	.2130	.0454	.0454	3.993	-.21	1/84	.049
2	38	Children taught	.2577	.0664	.0210	1.867	.13	2/83	.175
3	52	Encouragement from Principal for voluntary in-service	.2655	.0705	.0041	.359	-.16	3/82	.550
4	57	Encouragement to try curricular development	.2673	.0714	.0010	.085	-.16	4/81	.771
5	59	Encouragement from colleagues to try new classroom practices	.2679	.0718	.0003	.030	-.13	5/80	.864
				- Structural Variables -					
1	37	Class size	.2219	.0492	.0492	4.45	.22	1/86	.038
2	42	Existence of Staff Committee	.3306	.1028	.0535	5.07	-.19	2/85	.027
3	41	Grouping of Classes	.3341	.1116	.0088	.83	.14	3/84	.364

These were class size, and the existence of staff committees. There was no previous research known to the investigators concerning the relationship between class size and adoption. However, interestingly enough, those teachers in this study with larger classes scored higher on the adoption scale. The contribution of the variable dealing with the existence of staff committees is somewhat unclear considering that as we indicated earlier in this chapter (see page 60 and Table 3) that staff committees did not provide a source of encouragement for teachers to try new practices. However, it may be that a staff committee within a school, tangentially provides a milieu for social participation and professional development. On the other hand, staff committees may arise in schools for reasons that also give rise to active participation and office holding by individual teachers in their professional association.

Personal, Situational and Structural Variables

When the eight significant variables from the three analyses involving personal, situational and structural variables were entered as a set, four were significant at the 5 percent level accounting for 32 percent of the variance (Table 8). Two were personal characteristics and two were structural factors. The personal variables pertained to membership in and attendance at meetings of professional associations, and recency of participation in personal in-service, and they accounted for 18 percent of the variance. The two structural variables, class size and the existence of a staff committee, accounted for the remaining 14 percent.

TABLE 8

REGRESSION ANALYSIS OF SIGNIFICANT PERSONAL, SITUATIONAL AND STRUCTURAL VARIABLES PERTAINING TO ADOPTION

Step Number	Variable Entered Number Description	Multiple R	R Squared	R Square Change	F to Enter	Simple r	Significance df	Significance Prob.
1	8tot - Membership and attendance in Professional Association	.3429	.1176	.1176	7.46	.34	1/56	.008
2	37* - Class Size	.4513	.2037	.0861	5.95	.25	1/55	.018
3	33Y4 - Recency of personal in-service	.5165	.2668	.0631	4.65	.31	1/54	.036
4	42* - Existence of a staff committee	.5689	.3236	.0568	4.45	-.21	1/53	.040
5	34 - Usefulness of individual endeavours	.5943	.3532	.0296	2.38	.19	1/54	.129
6	17 - Usefulness of professional days on school-wide basis	.6105	.3727	.0194	1.58	-.18	1/51	.215
7	19 - Usefulness of professional days for individual teachers	.6256	.3925	.0110	1.63	-.04	1/50	.208
8	61** - Encouragement from Principal to try new classroom practices	.6313	.3986	.0061	.49	-.14	1/49	.483

* Structural Variables

** Situational Variables

Analysis of the Factor Scores

When the data were considered in terms of factor scores it can be seen that Factor 3 - Individualism was significant at the .05 level, but accounted for merely 5 percent of the variance (Table 9). This factor was made up of three items all pertaining to those activities which a teacher might be expected to initiate on his or her own, and lend support to the very personal nature of teacher adoption behaviour. Factor 4, which accounted for slightly over 2 percent of the variance, included four items taken from the Morse index dealing with work satisfaction. The fact that a teacher is satisfied with his or her work obviously has some influence on decisions about implementing new classroom practices.

TABLE 9

REGRESSION ANALYSIS OF FACTOR SCORES
PERTAINING TO ADOPTION

Step Number	Variable Entered Number	Description	Multiple R	R Squared	R Square Change	F to Enter	Simple r	Significance df	Prob.
1	Factor 3	Individualism	.2145	.0460	.0460	4.68	.21	1/97	.05
2	Factor 4	Work Satis-faction	.2656	.0706	.0246	3.64	.17	1/96	.10
3	Factor 2	Experience	.2758	.0760	.0055	2.61	.03	1/95	.10
4	Factor 1	Peer Group	.2764	.0764	.0003	1.94	.08	1/94	.10

Chapter 5

CONCLUSION

Discussion

This study was undertaken because we perceived that there was a limited knowledge pertaining to teacher adoption of classroom practices, both in relationship to the personal characteristics of the teacher, and situational features of his/her work environment. Despite the small scale of our study, we think the results provide some contribution to what is known about the renewal and change among teachers.

In examining the relationship of the personal characteristics of teachers to adoption, few of the adopter characteristics identified in previous research were found to be significant in this study. Except for variables pertaining to specific aspects of education, professionalism, in-service activities, social participation, work satisfaction, career plans and self perception as an innovator, more than half of the personal variables (twenty-one of forty) selected for investigation failed to show a significant relationship to adoption in the initial screening of the variables. Thus, there was little replication of some of the common personal/socio-economic characteristics identifying adopters in other fields. Similarly, fewer than one-third of the work systems variables (eight of twenty-six studied) showed any significant relationship to adoption scores of teachers. As many as three of these factors pertained to encouragement from the principal for the teacher to try new practices and to participate both in in-service activities and curriculum development. Other systems variables

included the existence of staff committees, the teachers' perception of pupil abilities, class size, and grouping of classes.

From the results of subsequent regression analysis on significant personal characteristics, it was evident that those personal variables related to participation in professional activities and the perceived usefulness of professional days accounted for most of the variance. From previous findings presented in earlier chapters it is not surprising that professionalism is linked to the adoption of new practices, and one might have expected high adopters to be those actively involved in professional activities. However, our findings indicate the professional activities most conducive to high scores on the implementation scales seem to be those of a somewhat private nature. In particular, the variable accounting for a large proportion of the variance, when the personal variables were seen as a set, was the recency of personal in-service activity. The notion of individualism was also supported by the fact that the "individualism" factor accounted for more of the variance than others when factor scores were considered as a set. When coupled with the fact that teachers do not see themselves receiving much encouragement from peers to try new practices, a fairly clear picture emerges. It is one of teachers working largely on their own to find out about new and recommended practices and implementing these themselves, without any significant support from peers.

If this picture is accurate, and the data in this study certainly point to it, then the hopes for change and renewal are undoubtedly limited. While individual effort is necessary and to

be commended, we must recognize that significant changes require encouragement and support from both the administration and from peers. Moreover, it would seem reasonable to assume that several heads are always better than one when it comes to dealing with problems of innovation and change. The results of this study suggest that the teachers sampled have sentiments of individualism similar to those described by Lortie:

> "Individualism is also visible in the relational preferences of the respondents. They stress the desirability of limited, specified, and circumscribed cooperation: they do not endorse denser and more intense relationships among adults. The quality of interactions they see as good is more hesitant than impulsive and more prudent than open. The individual teacher is shielded.
>
> The task-related sentiments reassert the theme of individualism. We find this in the reward system, the problematics of teaching and teachers' preoccupations and preferences. But there is a counter tendency: anxiety may induce conformity in teachers. That counter tendency probably accounts for the muted quality of teacher individualism." (Lortie, 1975, p. 210)

When regression analysis was applied to five work situational variables, it was found that the only significant factor pertaining to adoption was the encouragement of the principal for the teacher to try new classroom practices. On the surface, this finding does not seem surprising in the light that schools essentially remain hierarchical structures in which teachers are more likely to be influenced by opinions of superiors than of peers. Superiors can impose sanctions affecting careers, while peers cannot. Thus it would seem prudent for the teacher-innovator to seek encouragement from the principal before initiating a new practice or procedure. Further, it is this official who can frequently assist the teacher to gain access to supplementary

resources, if such are required. Small wonder then that previous research has often focused on school superintendents and principals as key figures in promoting or impeding change in the school system.

Structural variables pertaining to class size and the existence of a staff committee were relatively important too in terms of accounting for variance in the adoption score. An explanation as to why class size seemed important is exacerbated by the fact that the relationship was positive, indicating that those with larger classrooms scored higher on the adoption scale. Two possibilities seem likely. First, those teachers with large classes may be more active in seeking new ways of contending with the problems that attend large classes. Thus, they read more, seek more advice and consequently attempt new practices more frequently. Such may give substance to the adage of necessity being the mother of invention. Second, it is possible that the positive correlation was the result of a very low adoption score on the part of those teaching very small classes.

Those teachers in schools having staff committees had somewhat higher adoption scores as indicated by a correlation of -.19*. Yet the role played by such committees in increasing the adoption behavior among teachers was not apparent from the study. As pointed out earlier, on question fifty-five, 85% of the respondents indicated that staff committees were rarely or never a

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*Those responding positively to the question "Does your school have a staff committee?" were coded with a "1" and those negatively a "2". This accounts for the negative correlation.

source of encouragement to try new practices. It may be that the existence of such committees creates a social atmosphere conducive to the exchanges through which teachers learn about new practices despite the evident lack of direct encouragement to try new practices. As suggested earlier in this report, the existence of staff committees may be the result of staff participation and professional activity which in themselves gave rise to the higher adoption scores among the 65 who reported having staff committees in their school.

When a composite analysis of personal, situational, and structural variables was considered, those teachers most likely to implement new practices were those participating actively in their professional associations, by membership in and attendance at meetings, having recently been involved in personal in-service. In addition, high adopting teachers are likely to teach in a classroom of high enrolment, and in a school having a staff committee.

Implications

The results of the study raise a number of issues both in terms of further research and renewal in the schools. We have selected three for discussion. Each has some interesting and potentially important payoff to those involved in change and renewal. We list these issues briefly describing the data giving rise to each:

1. Earlier we described those results which were related to other works but which did not pertain to the specific questions raised in this study. Among these was the comparison

to Lortie's work. While some of the data from this study confirms quite well the findings of Lortie, others do not. In particular, we note the career aspirations of teachers. The Canadian teacher would seem to be more career bound than the American counterpart described by Lortie. This finding simply points to the need for research in Canada on such questions, and the necessity to be guided by a skepticism when generalizing from findings of another country.

2. It was quite clear from a number of questions, that apart from reading and talking with colleagues, teachers are not greatly influenced by outside sources such as change agents, university people or others. At least if there is contact, teachers do not seek out such sources when they take steps to learn more about their work. As an example only one teacher in the sample indicated having attended a university workshop for that purpose. It would seem then that any attempt of universities or other outside sources to impose themselves directly on teachers for in-service purposes is likely to bear small measure of success. Perhaps, some strategy of using intermediary personnel is necesary. Certainly, it is necessary that the teacher concerned be involved in identifying his own in-service needs, and then be encouraged to seek out sources of help outside the narrow range presently employed. Another difficulty may arise in that universities are traditionally not accustomed to joint planning with their clients. Such institutions tend to offer pre-packaged courses and programs on the assumption that they have the expertise to

know what is best for the consumer. This approach may be accepted as long as the teacher is fulfilling prerequisites for a degree or teaching certificate, but rejected once he feels he can exercise choice and define what is relevant to his needs. At this point, teachers generally reject university people when it comes to consultation about improving professional performance.

3. It also seems quite obvious that if one is going to devise successful strategies to promote change within a school and to counter the considerable measure of teacher "individualism" or "privatization" also identified in this study, then a conscious effort might be made toward the structuring of more group and team work situations. These might offer one means of overcoming that teacher tendency, and also provide a basis for generating some measure of peer support. Moreover, where staff committees exist their activity might well be directed toward a positive professional orientation, whereby encouragement and support is given to teachers attempting to implement new classroom practices. In addition, it seems that the principal must play an instrumental role in creating a unified staff which shares professional information, and has the confidence to try new practices, or at least to support the efforts of colleagues in such endeavours. The principal, himself, by showing positive interest in what is happening in classrooms may do a great deal to break down the barriers of teacher "individualism," and promote a school climate supportive

of teacher sharing and participation in planned change and professional renewal.

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APPENDIX A-1

DESCRIPTIVE DATA, CODING AND CORRELATIONS FOR ITEMS FROM INTERVIEW SCHEDULE

Items used in the instrument and the results in the form of frequencies, percentages, means, standard deviations and correlations or F ratios obtained from its administration in the spring of 1976.

NO.	GROUPING* (P, Si or St.)	ITEM		FREQUENCIES & PERCENTAGES	CODING OF DATA	RESULTS
1	P	Sex	Male	28(30)**	1	
			Female	65(70)	2(5)***	r = -.02****
2	P	Age	Under 25	16(17)	1	
			26 - 34	44(47)	2	
			35 - 44	15(16)	3	
			45 - 54	12(13)	4	
			55 - 65	6(7)	5(6)	r = -.09
3	P	Education What was the highest level of education you completed when you began teaching?				
			Undergraduate	55(59)	1	
			Bachelor's Degree	26(28)	2	
			Some post graduate work	9(10)	3	
			Master's Degree	2(2)	4	
			Other (please specify)	1(1)	5(7)	r = -.05
4	P	What year did you begin teaching?		-----	----	--------
5	P	What level of education do you have now?				
			Undergraduate	34(37)	1	
			Bachelor's Degree	34(37)	2	
			Some post graduate work	17(18)	3	
			Master's degree	4(4)	4	
			Other (please specify)	4(4)+	5(10)	r = .06
6	P	What year did you achieve this level of education?		-----++	-----	-------

*The groupings are based on three rationally identified categories: P-personal; Si-sitautional and St-structural (see p

**Percentages are included in parentheses.

***The numbers in parentheses indicate the column with the other numbers representing assigned categories.

****Correlation coefficients (r), are provided only where variables are dichotomies or represent interval data. Means ($\bar{X}$) and standard deviations (SD) are included where reasonable interpretations can be made.

+Completing Ph.D.

++Where blanks are indicated the readers should consult Appendix A-2 for tabular results.

NO.	GROUPING* (P, SI or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
7	P	From where did you get your initial teacher education?			
		U.B.C.	40(44)	1	
		S.F.U.	20(22)	2	
		U.Vic.	3(3)	3	
		Other (please specify)	25(27)	4	
			1(1)	5	
			3(3)	6(13)	
8	P	How many years have you been employed as an elementary teacher? (include this school year)			
		1 - 2	19(20)	1	
		3 - 5	17(18)	2	
		6 - 10	26(28)	3	
		11 - 15	15(16)	4	
		16 - 25	12(13)	5	
		26 or more	4(4)	6(14)	r = -.07
9	P	Please check the category below which best describes your teaching.			
		I have not implemented any new instructional or classroom management practices since my training as a teacher.	0(0)	1	
		I have seldom implemented any new instructional or classroom management practices in my work.	1(1)	2	
		I have occasionally implemented new instructional or classroom management practices in my work.	19(20)	3	$\overline{X}$ = 3.84
					SD = .54
		I have often implemented new instructional or classroom management practices in my work.	67(72)	4	r = .33

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
		I have very often implemented new instructional or classroom management practices in my work.	6(7)	5(15)	
10	P	Do you have specialist or generalist teacher training?			
		Specialist	36(40)	1	
		Generalist	53(60)	2(16)	r = .12
11	P	Which category best describes your work as a teacher?			
		Highly professional	12(13)	1	
		Professional	64(71)	2	
		Semi-professional	7(8)	3	
		Not at all professional	0(0)	4	
		Don't know	7(8)	5(17)	r = -.04
12	P	Do you perceive teaching as your career?	78(85)	1	
			5(5)	2	
			9(10)	3(18)	r = -.10
13	P	Do you plan to move on to some other position in the school system?			
		Yes	23(25)	1	
		No	43(46)	2	
		Undecided	27(29)	3(19)	r = -.30
14	P	If your answer to number 13 is "yes", Please describe the position.	------	-----	---------
15	P	Generally, what form do you prefer the organization of your professional day activities to take?			
		a district-wide activity	23(33)	1	
		a school-wide activity	8(11)	2	
		a team of teachers organizing an activity	26(37)	3	
		an individual's self-provided activity	13(18)	4(21)	r = - 07

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
16	P	Generally, how useful to you are professional days that are organized on a district-wide basis?			
		Very useful	14(16)	1	
		Useful	48(53)	2	
		Neither useful nor useless	16(18)	3	$\overline{X}$ = 2.31
		Of little use	10(11)	4	SD = .94
		Of no use at all	2(2)	5(22)	r = -.15
17	P	Generally, how useful to you are professional days that are organized on a school-wide basis?			
		Very useful	13(14)	1	
		Useful	55(59)	2	
		Neither useful nor useless	11(12)	3	$\overline{X}$ = 2.28
		Of little use	14(15)	4	SD = .89
		Of no use at all	0(0)	5(23)	r = -.20
18	P	Generally, how useful to you are professional days that are organized on the basis of a team of teachers organizing an activity?			
		Very useful	33(39)	1	
		Useful	41(48)	2	
		Neither useful nor useless	9(11)	3	$\overline{X}$ = 1.77
		Of little use	2(2)	4	SD = .73
		Of no use at all	0(0)	5(24)	r = -.20
19	P	Generally, how useful to you are professional days that are organized on the basis of individual teachers seeking out their own activity?			
		Very useful	38(42)	1	
		Useful	34(38)	2	
		Neither useful nor useless	14(16)	3	$\overline{X}$ = 1.83
		Of little use	3(3)	4	SD = .89
		Of no use at all	1(1)	5(25)	r = -.15

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
20	P	During 1975, did you participate in any in-service training (other than on professional days)?			
		Yes	72(77)	1	
		No	21(23)	2(26)	r = -.19
21	P	If so, please describe the activity	------	-----	--------
22	P	If you did not participate in in-service work (other than on professional days) in 1975, please state the answer that best indicates your reason.			
		Did not feel a need	5	1	
		Insufficient time	6	2	
		Too late in career	0	3	
		Too expensive	0	4	
		No opportunity available	4	5	
		Already have training	0	6	
		Have plans to begin some in future	0	7	
		Present job does not require it	0	8	
		None of it was applicable	2	9	
		Other (please describe)	4	(28,29)	
23	P	How useful to you are these in-service sessions (not including professional days) in learning about instructional and classroom management techniques?			
		Very useful	42(48)	1	
		Useful	40(46)	2	
		Neither useful nor useless	4(4)	3	$\overline{X}$ = 1.61
		Of little use	2(2)	4	SD = .68
		Of no use at all	0(0)	5(30)	r = -.27
24	P	When did you last attend an in-service session (other than on professional day)?	-----	-----	--------

NO.	GROUPING* (P, S! or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
25	P	Do you participate in any credit courses?			
		Very frequently	8(9)	1	
		Frequently	13(15)	2	
		Occasionally	17(20)	3	$\overline{X}$ = 3.6
		Rarely	14(16)	4	SD = 1.38
		Never	33(38)	5(35)	r = -.0006
26	P	When did you last take a credit course?	-----	----	---------
27	P	How useful to you are these credit courses in learning about instructional and classroom management techniques?			
		Very useful	12(16)	1	
		Useful	30(41)	2	
		Neither useful nor useless	15(20)	3	$\overline{X}$ = 2.59
		Of little use	10(14)	4	SD = 1.19
		Of no use at all	7(9)	5(40)	r = .10
28	P	Do you participate in any non-credit courses (e.g. university or BCTF short courses, night school courses, specialty courses) related to your teaching?			
		Very frequently	4(4)	1	
		Frequently	6(7)	2	
		Occasionally	28(31)	3	$\overline{X}$ = 3.7
		Rarely	21(23)	4	SD = 1.13
		Never	31(35)	5(41)	r = -.28
29	P	When did you last take a non-credit course?	-------	----	--------
30	P	How useful to you are these non-credit courses?			
		Very useful	11(18)	1	
		Useful	38(61)	2	
		Neither useful nor useless	10(17)	3	$\overline{X}$ = 2.11
		Of little use	1(2)	4	SD = .83
		Of no use at all	2(2)	5(46)	r = -.14

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
31	P	Do you engage in any other endeavours to learn more about your work?			
		Yes	82(89)		
		No	9(10)	(47)	r = -.04
32	P	If your response to No. 31 is "yes", please describe the nature of your endeavour(s)	----	----	--------
33	P	If your response to No. 31 is "yes" when did you last engage in such an endeavour?	----	-----	--------
34	P	If your response to No. 31 is "yes", how useful to you are these endeavours in learning about instructional and classroom management techniques?			
		Very useful	35(44)	1	
		Useful	38(48)	2	
		Neither useful nor useless	6(8)	3	$\bar{X}$ = 1.68
		Of little use	0(0)	4	SD = .72
		Of no use at all	1(1)	5(53)	r = .18
35	P	The next four questions ask how you feel about your work as a teacher. Please select which best fits your situation. (Morse Index)			
		a) How well do you like the sort of work you are doing?			
		Very satisfied	47(51)	1	
		Moderately satisfied	42(46)	2	$\bar{X}$ = 1.53
		Neither satisfied or disaatisfied	2(2)	3	SD = .60
		Moderately dissatisfied	1(1)	4	r = -.07
		Very dissatisfied	0(0)	5(54)	

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
35	P	b) Does your job give you a chance to do the things you feel you do best?			
		Very frequently	34(37)	1	
		Frequently	53(58)	2	r = -.16
		Occasionally	5(5)	3(55)	
		Rarely	0(0)		
		Never	0(0)		
		c) Do you get any feeling of accomplishment from the work you are doing?			
		Very frequently	34(37)	1	
		Frequently	51(55)	2	$\overline{X}$ = 1.71
		Occasionally	6(7)	3	SD = .63
		Rarely	1(1)	4	r = -.09
		Never	0(0)	5(56)	
		d) How do you feel about your work, i.e. rate it as an important job with you.			
		Very important	57(61)	1	
		Important	33(36)	2	
		Neither important or unimportant	3(3)	3	$\overline{X}$ = 1.42
		Little importance	0(0)	4	SD = .56
		No importance	0(0)	5(57)	r = -.26
36	P	What type of socio-economic neighbourhood do you live in?			
		Upper — upper upper	1(1)	1	
		Upper — lower upper	6(7)	2	
		Middle — upper middle	53(62)	3	
		Middle — lower middle	25(29)	4	
		Lower — upper lower	0(0)	5	
		Lower — lower lower	0(0)	6(58)	r = -.13

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
37	St.	How many children do you have in your class? (If you teach more than one class, indicate the average number).			
		0 - 10	3(3)	1	
		15 - 20	1(1)	2	
		21 - 25	22(24)	3	
		26 - 30	48(52)	4	
		31 - 35	16(17)	5	
		36 or more	3(3)	6(59)	r = .22
38	Si	How would the children you teach be described?			
		Gifted	0(0)	1	
		Bright	9(10)	2	
		Average	49(53)	3	
		Slow learners	2(2)	4	
		Retarded	0(0)	5	
		Other (please specify)	33(36)	6(60)	r = .14
39	Si	What level of achievement do most of the pupils in your class reach?			
		Above their ability	5(6)	1	
		Corresponding with their ability	79(88)	2	
		Below their ability	5(6)	3(61)	
40	St.	How many pupils are in your school?			
		Less than 100	0(0)		
		100 - 200	3(3)		
		201 - 300	3(3)	2	
		301 - 400	24(26)	3	
		401 - 500	32(35)	4	
		501 or more	30(33)	5	
				6(62)	r = -.10

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
41	St.	Are the classes in your school grouped -			
		Homogeneously	10(11)	1	
		Heterogeneously	66(73)	2	
		Not grouped at all	7(8)	3	
		Other (please describe)	8(9)	4(63)	r = .15
42	St.	Does your school have a staff committee?			
		Yes	65(72)	1	
		No	25(28)	2(64)	r = -.19
43	St.	How many administrators are in your school?			
		1	14(15)	1	
		2	70(75)	2	
		3 or more	9(10)	3(65)	r = .11
44	Si	How would you describe the socio-economic neighbourhood of the school where you teach?	0(0)		
		Upper: upper upper		1	
		Upper: lower upper	4(5)	2	
		Middle: upper middle	44(52)	3	
		Middle: lower middle	30(35)	4	
		Lower: upper lower	7(8)	5	
		Lower: lower lower		6(66)	r =-.13
45	Si	Is your school one in which your colleagues try new classroom practices?	0(0)		
		Very frequently	8(9)	1	
		Frequently	36(40)	2	
		Occasionally	37(42)	3	$\overline{X}$ = 3.47
		Rarely	5(6)	4	SD = .87
		Never	3(3)	5(67)	r = -.11

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
46	Si	Is your school one in which the principal implements new practices?			
		Very frequently	6(7)	1	
		Frequently	26(29)	2	
		Occasionally	36(40)	3	$\bar{X}$ = 2.91
		Rarely	12(14)	4	SD = 1.05
		Never	9(10)	5(68)	r = .00
47	Si	Are 50% or more of your classes in a specialist curricular area?			
		Yes	22(24)	1	
		No	69(76)	2(69)	r = .06
48	Si	If your response to question #47 is "yes", are 50% or more of your classes in the same specialty for which you were training?			
		Yes	19(76)	1	
		No	6(24)	2(70)	r = .17
49	Si	Were you appointed to your present position?			
		From within the school district	62(67)	1	
		From outside the school district	26(28)	2	
		Other (please describe)	4(4)	3(71)	r = .03
50	Si	In how many schools have you been employed as a teacher? (not counting schools worked in as a substitute teacher.)	------	----	--------
51	Si	What type of decision-making takes place regarding planning in your school?			
		Collegial decision-making (where the staff as a whole contributes to decision-making)	23(25)	1	
		Authority decision-making (where administrators make the decisions without consulting the staff)	17(18)	2	

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
51	Si (cont'd)	A combination of authority and collegial decision-making	52(56)	3	
		Some other kind (please describe)	1(1)	4(74)	
52	Si	Does your principal actively encourage you to participate in voluntary in-service training?			
		Very frequently	8(9)	1	
		Frequently	24(27)	2	
		Occasionally	26(29)	3	$\overline{X}$ = 3.02
		Rarely	22(24)	4	SD = 1.15
		Never	10(11)	5(75)	r = -.16
53	Si	Do your teaching colleagues actively encourage you to participate in voluntary in-service training?			
		Very frequently	0(0)	1	
		Frequently	14(16)	2	
		Occasionally	37(42)	3	$\overline{X}$ = 3.42
		Rarely	25(28)	4	SD = .93
		Never	13(15)	5(76)	r = -.05
54	Si	Do other school officials (e.g. superintendents, consultants, coordinators) encourage you to attend voluntary in-service training other than on professional days?			
		Very frequently	3(3)	1	
		Frequently	12(13)	2	
		Occasionally	33(37)	3	$\overline{X}$ = 3.48
		Rarely	23(26)	4	SD = 1.07
		Never	19(21)	5(77)	r = -.05

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
55	Si	Does your staff committee encourage you to participate in choosing what voluntary in-service training is to be provided?			
		Very frequently	2(3)	1	
		Frequently	7(10)	2	
		Occasionally	21(29)	3	
		Rarely	20(28)	4	
		Never	22(31)	5 (5)	r = .00
56	Si	Does your staff committee encourage you to participate in organizing voluntary in-service training?			
		Very frequently	1(1)	1	
		Frequently	8(11)	2	
		Occasionally	15(21)	3	$\overline{X}$ = 3.89
		Rarely	22(31)	4	SD = 1.07
		Never	26(36)	5 (6)	r = -.05
57	Si	Do you receive encouragement to participate in curriculum development such as locally developed courses?			
		Very frequently	4(04)	1	
		Frequently	10(11)	2	
		Ocassionally	29(33)	3	$\overline{X}$ = 3.61
		Rarely	20(22)	4	SD = 1.15
		Never	26(30)	5 (7)	r = -.16
58	Si	If you do receive encouragement, from whom or from what do you receive it?	-----	----	--------
59	Si	Is your school one in which your colleagues encourage you to try new classroom management?			
		Very frequently	2(2)	1	
		Frequently	17(19)	2	
		Occasionally	35(39)	3	$\overline{X}$ = 3.32
		Rarely	24(26)	4	SD = 1.0
		Never	13(14)	5 (9)	r = -.1

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA***	RESULTS
60	Si	If your school does not have a staff committee, please disregard this question. Is your school one in which your staff committee encourages you to try new classroom practices?			
		Very frequently	0(0)	1	
		Frequently	3(5)	2	
		Occasionally	7(12)	3	$\overline{X}$ = 4.23
		Rarely	21(37)	4	SD = .87
		Never	26(46)	5(10)	r = -.06
61	Si	Is your school one in which the principal encourages you to try new classroom practices?			
		Very frequently	0(0)	1	
		Frequently	13(15)	2	
		Occasionally	35(39)	3	$\overline{X}$ = 3.54
		Rarely	21(24)	4	SD = 1.00
		Never	20(23)	5(11)	r = -.21
62	Si	Is your school district one in which other officials (e.g. superintendents, directors, consultants, coordinators) encourage you to try new classroom practices?			
		Very frequently	3(3)	1	
		Frequently	13(15)	2	
		Occasionally	32(36)	3	$\overline{X}$ = 3.46
		Rarely	22(25)	4	SD = 1.09
		Never	19(21)	5(12)	r = -.03

APPENDIX A-2

INTERVIEW SCHEDULE

CATEGORIES RESULTING FROM OPEN ENDED RESPONSES

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA	RESULTS
1	P	Would you please try to recall the names of all the community organizations that you have belonged to in the past year. (Chapin Scale of Social Participation)			
		0	35(42)	1	
		1 - 5	3(4)	2	
		6 - 10	18(21)	3	
		11 - 15	11(13)	4	
		16 - 20	5(6)	5	
		21 - 25	7(8)	6	
		26 - 30	3(4)	7	
		31 - 35	1(1)	8	
		Over 35	1(1)	9(13)	r = .22
2	P	Would you please try to recall all the professional activities you have engaged in during 1975.			
		Score Attendance			
		0	5(6)	1	
		1 - 9	72(87)	2	
		10 - 19	5(6)	3	
		20 or more	1(1)	4(14)	
		Score Office Holding			
		0	62(76)	1	
		1 - 9	20(24)	2	
		10 - 19	0(0)	3	
		20 or more	0(0)	4(15)	r = .30
3	P	What professional journals and periodicals do you read?			
		0	3(4)	1	
		1 - 5	13(15)	2	
		6 - 10	26(32)	3	
		11 or more	40(49)	4(16)	r = .14

NO.	GROUPING* (P, Si or St.)	ITEM	FREQUENCIES & PERCENTAGES	CODING OF DATA	RESULTS
4	Si	What contacts with personnel outside the school have you made regarding professional matters about instructional or classroom management practices? What was the nature of the contact? Was the outcome successful or unsuccessful?			
		Specialist Area Consultant	8(14)	1	
		Trade or Craft Person	3(09)	2	
		Professional Person	19(34)	3	
		School Nurse, Counsellor	7(12)	4	
		Combinations	8(14)	5	
		District Head, Coordinator	4(07)	6	
		Supervisor	6(10)	7	(17)

APPENDIX A-2

4. What year did you begin teaching?

1930 - 1939	=	2	(3%)
1940 - 1949	=	3	(3%)
1950 - 1959	=	18	(19%)
1960 - 1969	=	29	(31%)
1970 -	=	41	(44%)
	N =	93	(100%)

6. What year did you achieve this level of education?

1930 - 1939	=	1	(1%)
1940 - 1949	=	2	(2%)
1950 - 1959	=	1	(1%)
1960 - 1969	=	24	(29%)
1970 -	=	58	(67%)
	N =	86	(100%)

24. When did you last attend an in-service session (other than on a professional day)

1972	=	2	(2%)
1973	=	2	(2%)
1974	=	7	(9%)
1975	=	25	(32%)
1976	=	44	(55%)
	N =	80	(100%)

26. When did you last take a credit course?

1950 - 1959	=	3	(4%)
1960 - 1969	=	16	(20%)
1970 - 1972	=	15	(18%)
1973 - 1974	=	24	(29%)
1975 - 1976	=	24	(29%)
	N =	82	(100%)

29. When did you last take a non-credit course?

1960 - 1969	=	4	(7%)
1970 - 1972	=	9	(15%)
1973 - 1974	=	14	(23%)
1975 -	=	18	(30%)
1976 -	=	15	(25%)
	N =	60	(100%)

32. Describe the nature of your endeavor(s) to learn more about your work?

Reading	=	17	(21%)
Talking with colleagues	=	9	(11%)
Visits to schools	=	8	(10%)
Colleagues and reading	=	37	(46%)
Development committee	=	3	(4%)
Conferences	=	5	(6%)
Courses offered by boards	=	1	(1%)
University workshop	=	1	(1%)
	N =	81	(100%)

33. When did you last engage in an active endeavor to learn more about your work?

1973	=	1	(1%)
1974	=	2	(3%)
1975	=	8	(11%)
1976	=	62	(85%)
	N =	73	(100%)

50. In how many schools have you been employed as a teacher (excluding substituting)?

1 School(s)	=	28	(30%)
2 "	=	18	(19%)
3 "	=	16	(17%)
4 "	=	7	(8%)
5 "	=	11	(12%)
6 "	=	1	(1%)
7 "	=	5	(6%)
8 "	=	3	(3%)
9 "	=	4	(4%)
	N =	93	(100%)

58. From whom and what do you receive encouragement to participate in curriculum development?

Principal, head teacher, vice-principal	=	7	(15%)
Department heads	=	1	(2%)
Colleagues/staff	=	12	(26%)
Consultants	=	5	(11%)
Supervisors	=	7	(15%)
Superintendents	=	4	(9%)
Staff and principal	=	3	(7%)
Handouts, bulletins, announcements	=	6	(13%)
Self	=	1	(2%)
	N =	46	(100%)

APPENDIX B

An Instrument to Investigate Characteristics of Teachers and Other influences Related to the Adoption of Recommended Teaching Practices by Elementary Teachers

Dr. Darrell Anderson
Dr. Marvin Wideen
Don Aylen

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INTRODUCTION

This instrument, comprised of both a questionnaire and an interview schedule is being developed to:

1) identify several characteristics of teachers who adopt recommended teaching practices in their classrooms,

2) identify characteristics of the social system that are related to the adoption of recommended practices,

3) identify events or influences such as in-service instruction, personal contacts, work toward certification, and personal endeavours that are related to the adoption of recommended practices,

and 4) to investigate the relationship between adoption of recommended practices and

a) sources of information available to teachers,

b) the degree to which the teacher views the occupation as a profession,

c) the teacher's participation in professional activities such as taking an active part in professional organizations and reading professional journals.

In practical terms the results of this study may be of value to persons who are 1) assigning personnel to schools, 2) planning professional development programmes, 3) communicating information about new and recommended teaching practices and, 4) designing change strategies for the implementation of new practices.

Interviews

The interviewer will code each interview immediately and will tape record each interview so that a sample may be subsequently reviewed by the investigators for consistency and accuracy of field coding and scoring.

Sample

Ten elementary schools chosen at random from school districts in the lower mainland will be involved in this study. Ten teachers chosen at random from each of the ten schools will be interviewed.

Analysis

The treatment of the data will reflect the correlational nature of the research. The adoption score obtained during the interview will be related to other variables in the study using appropriate statistical techniques.

Questionnaire - Part I - Personal Information			Reason for Asking the Question
1. Sex	Male	___	To determine sex of respondent.
	Female	___	
2. Age	Under 25	___	To determine age category of respondent.
	26 - 34	___	
	35 - 44	___	
	45 - 54	___	
	55 - 65	___	
3. Education What was the highest level of education you completed when you began teaching?			To determine respondent's level of education at beginning of teaching.
	Undergraduate	___	
	Bachelor's Degree	___	
	Some post graduate work	___	
	Master's Degree	___	
	Other (please specify)	___	
4. What level of education do you have now?			To determine present level of education of respondent and to determine if there is a relationship between changes (if any) from beginning levels to present levels of education and adoption of new practices.
	Undergraduate	___	
	Bachelor's degree	___	
	Some post graduate work	___	
	Master's Degree	___	
	Other (please specify)	___	

5. During 1975 did you participate in any kinds of formal professional training such as in-service training or course work (other than on professional days)?

Yes ___

No ___

To determine recency of seeking information about teaching

5A. Describe the activity _____

_____

6. If you did not participate in any formal professional training such as in-service or course work (Other than on professional days) in 1975 please state the answer that best indicates your reason:

Did not feel a need ___

Insufficient time ___

Too late in career ___

Too expensive ___

No opportunity available ___

Already have training ___

Have plans to begin some in future ___

Present job does not require it ___

None of it was applicable ___

Other (describe) ___

To determine respondent's reasons for not participating in professional training.

7. During 1975, did you on your own personal initiative seek any information about instructional or classroom management practices? If so, please describe. _____ _____	To determine what other ways teachers may seek information about teaching.
8. In how many schools have you been employed as a teacher? (not counting school worked in as a substitute teacher). ____	To determine number of schools worked in by respondent.
9. How many years have you been employed as an elementary teacher? (include this school year) 1 - 2 ____ 3 - 5 ____ 6 - 10 ____ 11 - 15 ____ 16 - 25 ____ 26 or more ____	To determine respondent's experience in an elementary school (as opposed to <u>total</u> teaching experience in #8)
10. Were you appointed to your present position from within the school district ____ from outside the school district ____ other (please describe) ____ _____	To determine origin of appointment (The "other" response may include a first year teacher.

11. From where did you get your initial teacher education?

U. B. C. ____

S. F. U. ____

U. Vic. ____

Other (please specify) ____

To determine respondent's teacher-training institution.

---

12. Please check the category below which best describes your teaching:

I have not implemented any new instructional or classroom management practices since my training as a teacher. ____

I have seldom implemented any new instructional or classroom management practices in my work ____

I have occasionally implemented new instructional or classroom management practices in my work ____

I have often implemented new instructional or classroom management practices in my work ____

I have very often implemented new instructional or classroom management practices in my work ____

To determine the respondent's perception of his implementation of new instructional or classroom management practices.

13. Which category best describes your work as a teacher? Highly professional ____ Professional ____ Semi-professional ____ Not at all professional ____ Don't know ____	To determine respondent's perception of himself as a professional.
14. Do you perceive teaching as your career? Yes ____ No ____ Undecided ____	To determine respondent's perception of his work as a career.
15. Do you plan to move on to some other position in the school system? Yes ____ No ____ Undecided ____	To determine whether respondent has future career plans in the school system.
16. When did you last attend an in-service session (other than on professional day)? _____	To determine recency of attendance at an in-service session (and to check on above question)

17. How useful to you are these in-service sessions?

Very useful	___
Useful	___
Neither useful nor useless	___
Of little use	___
Of no use at all	___

To determine usefulness of in-service sessions to respondent.

Questionnaire - Part II - Situational and Systems Variables

18. Does your principal actively encourage you to participate in voluntary in-service training?

Very frequently	____
Frequently	____
Occasionally	____
Rarely	____
Never	____

To determine degree of principal's encouragement to attend in-service sessions.

19. Do your teaching colleagues actively encourage you to participate in voluntary in-service training?

Very frequently	____
Frequently	____
Occasionally	____
Rarely	____
Never	____

To determine degree of colleagues encouragement for respondent to attend in-service sessions.

20. Do other school officials (e.g. superintendent, consultants, coordinators) encourage you to attend voluntary in-service training other than on professional days?

Very frequently ___
Frequently ___
Occasionally ___
Rarely ___
Never ___

To determine degree of officials' encouragement for respondent to attend in-service sessions.

21. Does your staff encourage you to participate in choosing what voluntary in-service training is to be provided?

Very frequently ___
Frequently ___
Occasionally ___
Rarely ___
Never ___

Do determine degree of school's or staff committee's encouragement for respondent to participate in choosing in-service training.

22. Does your school or staff committee encourage you to participate in organizing voluntary in-service training? Very frequently _____ Frequently _____ Occasionally _____ Rarely _____ Never _____	To determine degree of school's or staff committee's encouragement for respondent to participate in organizing in-service training.
23. Do you receive encouragement to participate in curriculum development? Very frequently _____ Frequently _____ Occasionally _____ Rarely _____ Never _____	To determine whether respondent feels encouraged to participate in curriculum development.
24. If you do receive encouragement, from whom do you receive it? _____ _____	To determine from whom or from what respondent receives encouragement to participate in curriculum development.

25. Do you participate in any non-credit courses (e.g. university or B.C.T.F. short courses, night school courses, specialty courses) related to your teaching? Very frequently ___ Frequently ___ Occasionally ___ Rarely ___ Never ___	To determine degree of respondent's participation in non-credit courses related to his teaching.
26. When did you last take a non-credit course? _____	To determine recency of respondent's participation in non-credit courses.
27. How useful to you are these non-credit courses? Very useful ___ Useful ___ Neither useful nor Useless ___ Of little use ___ Of no use at all ___	To determine usefulness of non-credit courses.
28. Do you engage in any other endeavours to learn more about your work? Yes ___ No ___	Do determine if respondent engag in other methods to learn more about his teaching.

29. If your response to No. 28 is "yes", please describe the nature of your endeavour(s). _____	To determine what other methods respondent uses to learn more about his teaching.
30. When did you last engage in such an endeavour? _____	To determine recency of respondent's participation in other endeavours.
31. How many children do you have in your class? (If you teach more than one class indicate the average number). 15 - 20 ____ 21 - 25 ____ 26 - 30 ____ 31 - 35 ____ 36 or more ____	To determine size of class respondent teaches.
32. How many pupils are in your school? Less than 100 ____ 100 - 200 ____ 201 - 300 ____ 301 - 400 ____ 401 - 500 ____ 501 or more ____	To determine size of respondent's school.

33. Are the classes in your school grouped Homogeneously ____ Heterogeneously ____ Not grouped at all ____ Other (please describe) ____	To determine how classes in respondent's school are grouped.
34. How would the children you teach be described? gifted ____ bright ____ average ____ slow learners ____ retarded ____ other (please describe) ____	To determine ability of children taught by respondent.
35. How many administrators are in your school? 1 ____ 2 ____ 3 or more ____	To determine number of administrators in respondent's school.

36. What type of decision making takes place regarding planning in your school?

Collegial decision making ____

Authority decision making ____

Both collegial and authority decision making ____

Some other kind (please describe) ____

To determine what type of decision making takes place regarding planning in respondent's school.

37. What type of socioeconomic neighbourhood is your school in?

Upper	upper upper ____ lower upper ____
Middle	upper middle ____ lower middle ____
Lower	upper lower ____ lower lower ____

To determine respondent's perception of the socioeconomic level of his school's neighbourhood

38. What type of socioeconomic neighbourhood do you live in?

Upper	upper upper ____ lower upper ____
Middle	upper middle ____ lower middle ____
Lower	upper lower ____ lower lower ____

To determine respondent's perception of the socioeconomic level of his own neighbourhood.

Interview Questions - Part I

1. I will now read you four questions that ask how you feel about your work as a teacher. Please select the answer which best fits your situation.

(Morse Index)

a) How well do you like the sort of work you are doing?

Very satisfied ____

Moderately satisfied ____

Neither satisfied nor dissatisfied ____

Moderately dissatisfied ____

Very dissatisfied ____

b) Does your job give you a chance to do the things you feel you do best?

Very frequently ____

Frequently ____

Occasionally ____

Never ____

Rarely ____

Reason for Asking This Question

Morse Index of Intrinsic Job Satisfaction

To determine respondent's "... satisfaction with doing the actual content of the work." (- in Delbert C. Willer. Handbook of Research Design And Social Measurement. New York: David McKay Co. 1970, pp. 261 - 264

c) Do you get any feeling of accomplishment from the work you are doing?

Very frequently ___

Frequently ___

Occasionally ___

Rarely ___

Never ___

d) How do you feel about your work, i.e., does it rate as an important job with you?

Very important ___

Important ___

Neither important nor unimportant ___

No importance ___

2. Would you please try to recall the names of all the community organizations that you have belonged to in the past year. (Chapin Scale of Social Participation)

Name of Organization	Attendance	Financial Contr.	Member of Committee	Offices Held
x1	x2	x3	x4	x5

Scoring

0 ____
1-5 ____
6-10 ____
11-15 ____
16-20 ____
21-25 ____
26 - 30 ____
31-35 ____
Over 35 ____

Chapin's Social Participation Scale

To measure degree of respondent's participation in community groups (in Delbert C. Mille Handbook of Research Design and Social Measurement. New York: David McKay C 1970, pp. 289-292) and in F. Stuart Chapin, Experimenta Designs in Sociological Research New York: Harper 1955, pp. 276-277

3. Would you please try to recall all the professional activities you have engaged in during 1975.

(Name them) Pd.Membership in Prof.Assn.	Attends local meetings, workshops, etc.	Attends regional meetings, workshops, etc.	Attends Provincial meetings, workshops, etc.	Attends national-inter-national meetings, workshops, etc.
x1	x2	x3	x4	x5

Total score (attendance) ____

Total score (office holdings) ____

Total Score ____

Score attendance

0 ____
1-9 ____
10-19 ____
20-29 ____
30-39 ____
40-49 ____
50-59 ____
60-69 ____
Over 69 ____

(Name them) pd. member-ship in Prof Assn.	Holds office, local assn.	Holds office, region-ally	Holds office, prov.	Holds office, national or inter-national
x1	x2	x3	x4	x5

Score office holding

0 ____
1-9 ____
10-19 ____
20-29 ____
30-39 ____
40-49 ____
50-59 ____
60-69 ____
Over 69 ____

Reason for Asking This Question

To determine respondent's degree of professional activity.

(from Darrell Anderson, "The Adoption of Recommended Administrative Practices By The Directors of Public School Adult Education" Unpublished Doctoral Dissertation, University of British Columbia, 1974, Appendix, 11

4. What professional journals and periodicals do you read?

Name of Journal or Periodical	Reading Frequency		
	Fairly Often	Occasionally	Rarely
x1	x3	x2	x1

Score

0 ____
1-5 ____
6-10 ____
11-15 ____
16-20 ____
21-25 ____
26-30 ____
31-35 ____
Over 35 ____

Reason For Asking This Question

To determine respondent's degr of professional reading. (from Darrell Anderson. "The Adoption of Recommended Administrative Practices By The Director of Publi School Adult Education." Unpublished Doctoral Disserta tion, University British Columbia, 1974. p.12

5. What contacts have you made with the principal or vice-principal or department head on professional matters regarding instructional or classroom management practices?

No. of contacts	With whom	Nature of the contact	Outcomes

Reason For Asking This Question

To determine respondent's degree of contact with principal re professional matters on teaching practices.

6. What contacts with personnel outside the school have you made regarding professional matters about instructional or classroom management practices? What was the nature of the contact? Was the outcome successful or unsuccessful?

No. of contacts	With whom	Nature of the contact	Outcomes

To determine respondent's degree of contact with outside personnel re professional matters on teaching practices.

7. Which statement best describes both your training and your teaching?

I have specialist training in a curricular area and fifty percent or more of my classes are in this area. ___

I have specialist training in a curricular area but fifty percent or more of my classes are not in this area. ___

I do not have specialist training in a curricular area but fifty percent or more of my classes are in a specific curricular area. ___

I do not have specialist training in a curricular area and fifty percent or more of my classes are not in a specific curricular area. ___

Reason For Asking This Questi

To determine whether responde has specialist training and whether he teaches in a specific curricular area.

Interview Questions - Part II

Adoption of Teaching Practices

A total score for adoption of new teaching practices (defined here as current, recommended instructional or classroom management systems) is to be calculated for each teacher. The following five questions (based on Rogers' (1962) five stage model of the adoption process) are to be asked by the interciewer to determine which stage the teacher has reached for each of the practices:

1. For awareness, Do you know about this teaching practice?
2. For the interest stage, Have you sought any additional and more detailed information on this practice?
3. For evaluation, Have you given any consideration as to whether you can apply this practice to your teaching situation?
4. For trial, Have you tried out the practice to see if it applies to your teaching situation?
5. For adoption, Have you adopted this practice as a regular part of your teaching?

When it has been basically determined at what stage the teacher has reached in the adoption process with these five questions, the teacher will be encouraged to discuss in greater detail what he knows about the practice, how he has tried it and when he adopted it as a regular part of his teaching. This detailed information will be recorded on a cassette tape recorder to enable 1) subsequent re-checking, assessment, and scoring by the interviewer and 2) monitoring and checking the procedure by the research team.

The adoption score for each of the teaching practices will be based on the following traditional scoring system:

0 for non-awareness,

1 for awareness,

2 for interest,

3 for evaluation,

4 for trial, and,

5 for adoption.

The total possible score a teacher could receive then would be 80, (5x16 practices) if he has fully adopted all of the recommended practices. The total adoption score for each teacher will comprise the dependent variable in this study.

Questions 1A and 2A are to elicit the sources of awareness and of information, respectively.

Interview Questions

"I will now show you a list of teaching practices. We can discuss them one at a time. I would like to know if you are aware of these practices and what progress, if any, you have made towards their adoption."

(The following questions will be asked about each of the teaching practices.)

1. Do you know about this teaching practice?

Yes - (go on to questions 1A & 2)

No - (go on to next practice)

1A. From where or from whom did you find out about this practice?

_____

2. Have you sought any more additional and more detailed information on this practice?

Yes - (go on to questions 2A & 3)

No - (go on to next practice)

2A. From what sources did you seek this information?

_____

_____

_____

3. Have you given any consideration as to whether you can apply this practice to your teaching situation?

Yes - (go on to question 4)

No - (go on to next practice)

4. Have you tried out the practice to see if it applies to your teaching situation?

Yes - (go on to question 5)

No - (go on to next practice)

5. Have you adopted this practice as a regular part of your teaching?

Yes -

No -

LIST OF TEACHING PRACTICES

1. Use of some type of behaviour modification system, i.e., a method that has been developed by applying the interpretive framework of behavioural psychology to the classroom.

2. Thematic teaching, where all subjects are taught around one theme for a period of time.

3. Use of some kind of technique for analyzing teacher student interaction patterns.

4. Teaching thinking and inquiry skills by using methods such as questioning strategies.

5. Contracting with pupils, i.e., an agreement between pupil and teacher where the pupil will complete specified tasks in return for certain grades given by the teacher.

6. Use of a system of values clarification with pupils (e.g., Raths, Simons)

7. Group Dynamics, i.e., techniques in handling individuals and groups with a better awareness of human relations; using methods to improve individual and or group teaching situations in the classroom (e.g. developing interpersonal relationships to facilitate communication and discussion).

8. Using the community as a resource (e.g. volunteers to help in the classroom, "specialists" or "experts" in the field brought in to make presentations or act as resource persons).

9. Individualizing materials or programmes for pupils.

10. Use of manipulative materials by pupils.

11. Peer evaluation of pupil assignments.

12. Use of the group investigation method of teaching, i.e. the confrontation of pupils with a stimulating problem, the development of individual pupil reactions to it, the formulation of the problem by the pupils, and an attack on the formulated problem including independent and group analysis of progress and recycling of the activity.

13. Use of an inductive method of concept formation involving a) enumeration and listing items, b) grouping them by identifying common properties and by abstracting, and c) labelling and categorizing items through an hierarchical order.

14. Use of an inquiry method of teaching involving a) confrontation with a problem puzzling to the student, b) a period of inquiry such as a series of pupil questions that the teacher answers with yes or no answers, or, the conducting of experiments or analysis of problems by selecting new data and reorganizing it to generate ideas or hypotheses, and, c) analysis of the inquiry strategy with emphasis on development of more effective strategies.

15. Use of a stations approach for organizing resource material and activities.

16. Use of interdisciplinary studies.

17. Use of a method to develop and improve the self concept of pupils.

APPENDIX C

RATIONALE FOR SELECTION OF ITEMS

Personal Characteristics Items

Sex

Although family responsibilities and varying career mobility may have made women less aggressive and less committed than men to their occupations, this is probably changing. Because of the large number of women in teaching, it was therefore chosen as a characteristic to be investigated (Corwin, 1975).

Age

Adoption among teachers has been linked with younger ages (Belasco, 1973; Johnson, 1973; Leslie, 1970; Marcum, 1968; Washington, 1974; Wygal, 1966; Yegge, 1971). Rogers (1962) in his earlier review had generalized that earlier adopters were younger. However, Bridges and Reynolds (1968) found no significant relationship between age and teacher receptivity to change. Rogers and Shoemaker (1971) in a compilation of over two hundred studies on adoption in various fields have stated that there is no consistent relationship between age and adoption as approximately one-half of the studies on the subject indicate no relationship, twenty percent of the studies show that they are younger and thirty percent show that they are older. Because of this inconsistency it was decided to include age as a characteristic to be investigated.

Education

There is some evidence that higher educational levels and earlier adoption are related in education (Mort, 1964) and in other fields as well (Aiken and Hague, 1967; Rogers and Shoemaker,

1971). In one educational study it was found that 1) the level of science training contributed to the effect of a teacher in-service programme and, 2) that a wider base of knowledge will put the more knowledgeable teacher at the forefront of his field and therefore provide him with more security (White, Raun and Butts, 1969). However, in another education study (Nelson, 1975) it was found that schools with more highly trained teachers were no more innovative than schools staffed with predominantly less trained teachers.

There is little evidence regarding this characteristic and it was decided to investigate not only the present level of education of the teacher but to also investigate the level attained at the time the teacher began teaching because completion of teacher-training courses while teaching, may be related to adoption level. Because differing methods of teacher-training may affect adoption levels, the respondent was asked to identify the institution where initial teacher training was received.

Experience

There is evidence for teachers with high adoption scores generally having lengthy teaching experience (Holdaway and Seger, 1968; Johnson, 1973) - although one study found that innovators had fewer years of experience than traditional teachers (Washington, 1974) Bridges and Reynolds, (1968), found that teaching experience and length of tenure were not related to teacher receptivity to change and a third study found that schools with more experienced teachers were less innovative (Nelson, 1975). However, it was found

that innovative school districts had more experienced teachers than non-innovative districts (Crandall, 1972). In a discussion of the relationship between experience and adoption among teachers Corwin (1975) suggests that experience may lead to change because of reinforcement of status security, increased familiarity with the system, and the increased willingness to take risks in general. Because of the generally conflicting evidence and Corwin's suggestion, it was decided to investigate this characteristic further.

Self Perception of Degree of Implementation of New Teaching Practices

Smith and Keith (1971), suggest that teachers may be more interested in the language of innovation than in the actual adoption of teaching practices, that is, verbal adoptions may be entirely sufficient for some teachers. It was therefore decided to include questions about the respondent's perception of his own degree of implementation of new practices.

Specialist Training

Aiken and Hague (1970) suggest that specialization in an organization allows individuals to search for and to use new knowledge and practices to serve the interests of clients. The more specialization occurring, the greater the range of values in the organization and the greater the chance for occupational conflict, which may, in turn, lead to change (Aiken and Hague, 1970). Corwin (1975) suggests that contrarily, each specialization has its own interests that may be threatened by changes promoted by other specializations, and this could lead to opposition to change. In one educational study a relationship was

found between adoption and "horizontal differentiation" - a wide range of staff members (Nelson, 1975). However, this study also found that highly complex schools were less likely to adopt innovations which were difficult to implement. As well as examining specialist training which constitutes a personal characteristic, the respondent is asked to indicate whether he teaches as a specialist or as a generalist, with reference to situational characteristics.

Self-Perception of a Professional Status

Anderson (1974) found that the respondent's rating of his position as a professional was related to adoption in a study of adult education directors. It seemed reasonable to investigate this same phenomena among teachers to determine if a similar relationship exists among teachers.

Perception of Teaching as a Career

Career commitment, being related to professionalism, may also be related to adoption as it was in Anderson's (1974) study and is included as a characteristic to determine the relationship among other educators.

Professional Days

Since the teachers in this study are granted several days leave per year to pursue professional interests, a number of questions were designed to elicit information about 1) teachers' preferences and, 2) their views on the usefulness of various organizational bases of these days to see if there is a relationship with adoption levels.

In-Service Training

With regard to training, a number of questions were included to determine respondent's participation, recency of participation and views of usefulness of in-service training and their possible relationship to adoption. These have been identified as significant variables in other studies (White, Raun and Butts, 1969).

Credit Courses

Similarly, with regard to credit course work, questions were included to determine the respondent's participation, recency of participation and views of usefulness of credit courses and their possible relationship to adoption.

Personal Endeavours

Because the personal research of the teacher has been identified as a useful component in the diffusion of innovations (Robeson, 1974), questions designed to elicit this information were included in the study.

Expectation of Pupil Achievement

Because of the findings in studies that examine the influences of teacher expectations on pupil achievement, (Good and Brophy, 1973; Brophy and Good, 1970), it was thought appropriate to investigate this characteristic and its possible relationship to adoption. It might well be that teachers who have greater expectations for student achievement are also the practitioners who implement the greatest number of recommended classroom practices to promote such achievement.

Work Satisfaction

Anderson (1974) found that directors of adult education who achieved high adoption scores also scored high on the Morse Index of Intrinsic Job Satisfaction (from Miller, 1970, p. 264). Khan (1968) and Walthew (1970) found a similar relationship among teachers. An attempt will be made then to determine if such a relationship exists among the teachers of this study.

Perceived Socioeconomic Level of Teacher's Own Neighbourhood

Since Sexton, (1967), has suggested that upper class teachers who teach in lower class schools tend to work with less enthusiasm and energy than upper class teachers who teach in upper class schools, it seems important to determine if a somewhat similar relationship exists with regard to adoption of recommended classroom practices. The categories used in this question were taken from Lasswell (1965).

Chapin's Social Participation Scale

The Chapin Social Participation Scale (from Miller, 1970, pp. 289-292), is included in the instrument to measure the degree of the teacher's participation in community groups. Although no relationship between social participation and adoption was found by Anderson (1974), Alleyne and Verner, (1969), found that among several personal characteristics, social participation showed the highest positive correlation with adoption. Verner and Gubbels (1967) in another agricultural study, similarly found social participation to be positively

related to adoption. The Chapin Scale is therefore included in the instrument to ascertain if this characteristic is replicated with teachers.

Scale of Professional Activities

This scale, previously used by Anderson (1974) who found a relationship between a high degree of professional activity and high adoption levels is being used to determine whether a similar relationship exists with teachers.

Scale of Professional Reading

In his study of adult education directors, Anderson, (1974), used this scale and found a significant relationship between levels of reading of adult education journals and adoption scores. A similar relationship has been found in several educational studies, (Christiansen, 1965; Ellis, 1968; Henley, 1968; Miles, 1964; and Nicholson, 1965), and it was decided to include professional reading as a characteristic to be investigated in this study.

Situational Factors Items

Specialist Teaching

It was decided to determine whether or not the teacher is a specialist in practice. This information will be compared with information elicited earlier in the personal characteristics which asks the teacher if he has had specialist

training. From this information, four categories of teachers can be made; 1) specialist-trained teachers who teach the specialty, 2) specialist-trained teachers who do not teach the specialty, 3) generalist-trained teachers who teach a specialty and, 4) generalist-trained teachers who do not teach a specialty. An attempt to examine the four categories and their possible relationship to adoption levels will be made.

Origin of Appointment

The teacher's origin of appointment, that is, whether he was appointed to his present position from within or from outside the school district, was deemed of sufficient importance to investigate for its possible relationship to adoption. Anderson (1974) in his study of adult directors of education found that directors appointed from outside had significantly higher adoption scores than directors appointed from within their own district. Persons appointed from outside the district may be more likely to adopt recommended practices than appointees from inside the district who have already been integrated into the system from which they receive the appointment.

Number of Schools Employed In

Similarly, it was decided to determine how many schools the teacher has worked in, as a teacher who has worked in a high number of schools may be more likely to adopt recommended

practices because of his wider experience in various school organizations and orientations. Conversely, it is possible that a teacher who has worked in the same school (or very few schools) throughout his career may have been thoroughly integrated into an organizational system and therefore be reluctant to make the kind of changes involved in the adoption of new practices.

Described Ability of Pupils

It has been found that teachers often respond differently to pupils of differing abilities (Good and Brophy, 1973). Because this response may be reflected in levels of adoption, it was decided to explore this area.

Decision Making

With the recent encouragement to increase the degree of collegial decision-making in schools, (British Columbia Teachers' Federation, 1975), it seemed useful to examine whether this type of decision making is actually being implemented and whether it has any relationship, positive or negative, to adoption practices.

Encouragement to Participate in In-Service Training and Curriculum Development

It was thought useful to examine the degree to which the teacher felt encouraged to participate in in-service training by the principal, colleagues, and other school officials. Questions were designed to examine what encouragement the teacher

receives from the staff committee to participate in choosing and organizing in-service training, to measure the degree to which the teacher felt encouraged to participate in curriculum development and, to identify the source of such encouragement. Knowledge of these factors and their possible relationship to adoption would be useful to those interested in the development of in-service training.

Encouragement to Try New Classroom Practices

It seems reasonable that encouragement to try classroom practices new to the teacher may be related to the adoption of recommended practices. Several questions were designed to determine the degree to which teachers felt encouraged by colleagues, staff committee, administrators and other officials to try new classroom practices.

Colleagues Trying of New Practices

Group pressures from colleagues may influence teachers to conform to either high or low degrees of trying out new practices and such should be evidenced in a range of adoption scores; therefore it was decided to explore this possible relationship here.

Implementation of New Practices by the Principal

Similarly, the respondent may feel pressured to conform to high or low degrees of implementation of new practices by his principal, and it was decided to investigate the possible relationship here.

Perceived Socioeconomic Level of School's Neighbourhood

This feature will also be compared with the information elicited about the socioeconomic level of the respondent's own neighbourhood to investigate a possible inter-relationship of both of these with adoption levels.

Contacts With Principal and Other Personnel

Questions regarding the respondent's degree of contact with the principal and outside personnel regarding professional matters about instructional or classroom management practices were included in the interview questions. They may yield some information about the sources of information used by teachers and their possible relationship to adoption.

Structural Features Items

Class Size

Although class size is an important concern to many teachers in the operation of their classroom activities, this factor has not yet been investigated with regard to the adoption of instructional practices, hence its inclusion here.

Size of School

Teachers in larger schools may be exposed to more techniques and activities by their colleagues than teachers in smaller schools, therefore it was decided to investigate the possible relationship between school size and adoption levels.

This question may also be related to the specialization of teachers in their training and in their practice examined elsewhere in the instrument.

Grouping of Classes

Adoption levels of teaching practices may well be related to the ability level of classes taught by teachers, therefore a question was constructed to determine whether classes in the school were grouped homogeneously, heterogeneously or in some other way.

Staff Committee

Because of the recent policy of the British Columbia Teachers' Federation for teachers to form staff committees, (British Columbia Teachers' Federation, 1975), it was decided to determine whether the respondent's school did indeed have a staff committee and whether its existence could be related to adoption of classroom practices among teachers.

Number of Administrators

It was decided to determine the number of administrators in the respondent's school to find whether there is a relationship between this type of organizational feature and teacher adoption levels. It is possible that more administrators would offer more encouragement for adoption of practices in the school.